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REISSUE LITIGATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

For: **VEHICLE ADVERTISING SIGN, SYSTEM AND METHOD**

Examiner: **Brian K. Green**

Art Unit: **3611**

Attorney Docket No.
8588.12RE

MS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

APPELLANT'S AMENDED APPEAL BRIEF

COMES NOW Appellant William A. Elmer in the above-identified patent application through his undersigned counsel and submits this amended brief in support of his appeal from the rejection of Claims 2, 3, 13-17 and 19-25 in the Final Office Action of February 28, 2006 and in response to the Office letter of September 18, 2006.

Claims 1, 4-12, 18 and 26 are in the case and were not finally rejected; therefore, these claims are deemed allowable.

The required fee under 37 CFR §1.17(c) was enclosed with the original brief; please charge any additional fees to Deposit Account No. 01-0484. This amended brief is submitted in triplicate.

An oral hearing is not requested.

I. Real Party in Interest

The real party in interest in this application is Appellant William A. Elmer who resides in Winter Park, Florida.

II. Related Appeals and Interferences

There are no other appeals or any interference proceedings which are related to this application.

III. Status of Claims

The rejection under 35 USC §251 as to Claims 1, 4-12, 18 and 26 was withdrawn in the Advisory Action dated May 22, 2006 and are now deemed allowable. Only Claims 2, 3, 13-17 and 19-25 are the subject of this appeal, and are set out in the attached Appendix A.

IV. Status of Amendments

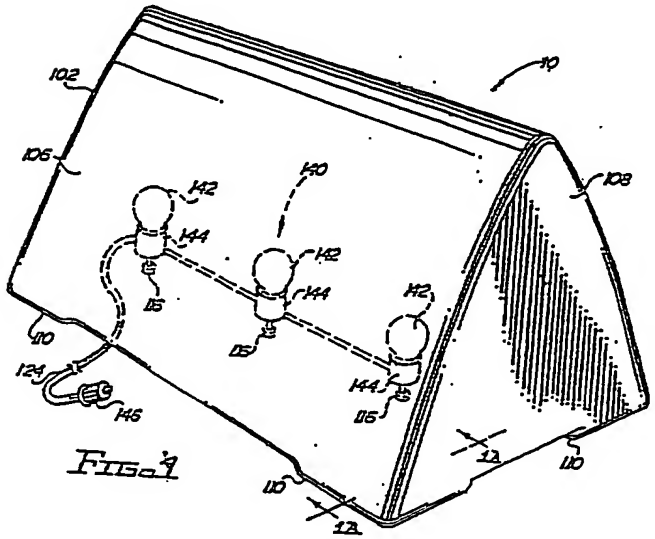
Amendments under 35 CFR §1.116 were entered with the Advisory Action dated May 22, 2006. All other amendments were previously entered.

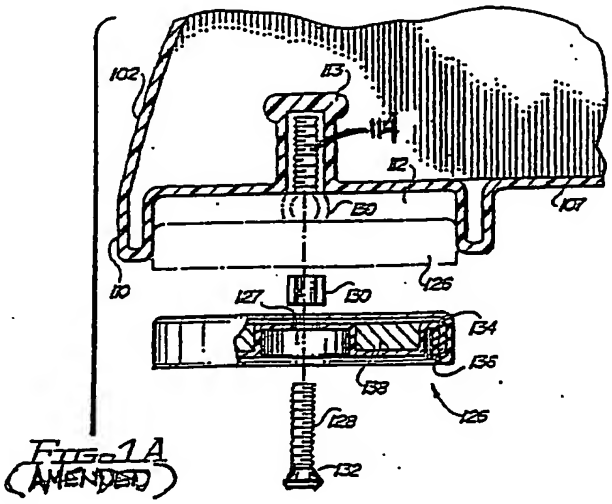
V. Summary of Claimed Subject Matter

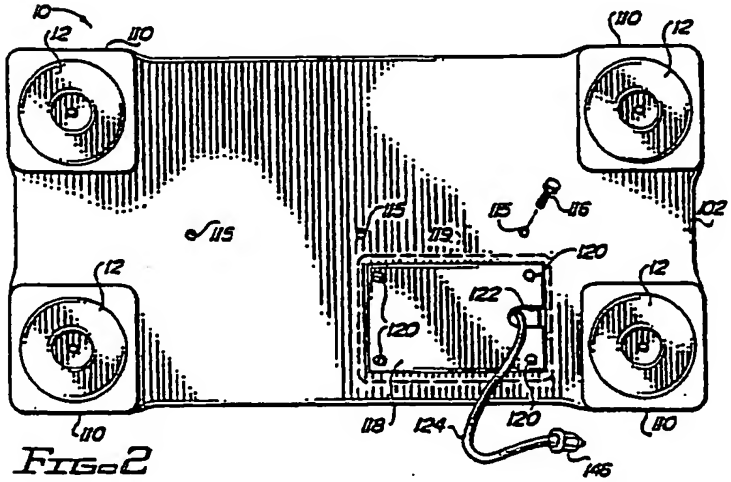
The following complies with the requirements of 35 C.F.R.§41.37(c)(1)(v).

A. Appellant's Sign Construction

Appellant's claimed subject matter is described below with reference to Figs. 1, 1A (amended) and Fig. 2, which are reproduced next:







For the Board's convenience and with reference to the above drawing figures, Appellant's invention is best understood from the following:

> Figs. 1 and 2 show two views of advertising sign **10**, comprising a hollow rigid and translucent unitary molded plastic advertising member **102** of substantially triangular cross section lateral to the elongated direction. This unitary construction significantly reduces the intrusion of water, which is detrimental to the illumination system. Advertising member **102** possesses two triangular end faces **108**, a base **107** in the form of a generally rectangular sheet of plastic material, and two elongated substantially rectangular side surfaces **106** which are somewhat curved to improve aerodynamic characteristics, and to which side and end surfaces advertising messages may be affixed. The molded advertising member **102** also contains four integrally molded feet **110** each of which extends below the plane of the remaining central portion of the base **107**, each molded foot **110** at corresponding corner of the base **107**. All edges of the molded advertising member are closed and rounded to improve aerodynamic and moisture resistance properties.
>
> Fig. 1A illustrates a coated magnet assembly **126** removably affixed within a similarly-shaped, indented recess or receptacle **112** in each foot**110** via screw **128**, which possesses a beveled head **132** and is threaded into metal sleeve **114**. The sleeve **114** is set into a molded extension **113** through the base **107** and into the internal cavity of the advertising member **102**. A flexible sleeve **130** is interposed between each magnet assembly **126** and recess **112**; beveled head **132** and flexible sleeve **130** permit a nonrigid attachment of magnet assembly **126** in the corresponding recess or receptacle **112**, thus permitting the magnet assembly **126** to pivot slightly as needed to adjust for curvature of the vehicle's roof. Each magnet assembly **126** is coated with a scratch-resisting plastic material which extends across the bottom and over the edge of the assembly and is chosen to prevent both scratching of the vehicle's metallic surface and exposure of the metallic stand-off housing **134** (described below). A suitable scratch-resistant coating material is Plascoat PPA 571 manufactured by Plastronics, Inc. A screw hole **127** in the coated magnet

assembly **126** is recessed so that the head of screw **128** will not contact the roof of the vehicle (col. 2, line 41 - col. 3, line 18).

* * * *

The advertising sign **10** is removably affixed to a metallic vehicle roof **180** in such a way that the advertising sign may be read from all directions, as shown in FIG. 3. This is accomplished by placing the long axis of advertising sign **10** on the roof **180** parallel to the windshield of the vehicle. In this configuration, the slight curvature of the forward-facing side **106** substantially reduces wind resistance, and thus, the likelihood that the sign **10** will be blown from the automobile at elevated speeds. Each receptacle **112** is formed by the extension of the adjacent side **106** and the adjacent end **108** below the remaining central portion of the base **107** so as to surround the corresponding magnet assembly **126**. The dimension of the feet **110** insures that the curvature of the roof does not prevent the magnets from engaging the roof **180**. Alternately, the sign **10** may be placed longitudinally along the roof **180** (col. 3, lines 33-45).

* * * *

It will be understood by those skilled in the art that the advertising member **10** of the present invention and its associated storing arrangements provide numerous advantages and improvement with respect to the prior art. For example, the unitary, enclosed construction of the sign member **10** and the curvature of the elongated signs **106** provide a large message area, while significantly reducing wind resistance relative to prior art sign structures of similar configuration. The integral, enclosed nature of the base **107** also contributes to the reduction of wind drag, while protecting the illuminating lamp assembly of **140** from moisture. The corner feet **110** further contribute to a reduction in wind drag, being integrally molded with the remainder of the body, while insuring that the advertising member **10** is capable of being supported upon the roof of vehicles having a wide range of curvature across the roof. The particular construction of the magnet assembly **126**, and the particular manner in which it is supported in the corresponding one of the feet **110** permits the advertising member **10** to be easily attached to and removed

from a roof of a vehicle, again while insuring that the member **10** remains firmly attached to the roof of the vehicle during use. The particular section of scratch-resistant coating **137** on the magnet assembly **126** protects both the magnet assembly and the vehicle roof during use (col. 4, lines 18-42).

B. **Concise Explanation of the Subject Matter of Each Independent Claim in the Appeal and Each Dependent Claim Argued Separately**

The following is a concise explanation of the subject matter defined in independent Claim 2 (the only independent claim involved in this appeal), as well as dependent Claims 3, 13, 14, 15, 20, 21, 24 and 25, the patentability of each of which is argued separately. Column and line references are to the original '100 patent.

Claim 2 recites an advertising sign **10** for removably mounting on a metal panel **180** of a vehicle roof. The advertising sign **10** comprises an advertising member **102** having a base **107**, ends **108** and sides **106** formed together into a completely enclosed hollow body. The advertising sign **10** also comprises plural magnets **126,** and means for pivotally attaching each magnet **126** to the base **107** so that each magnet **126** can pivot and adjust to differences in slope along the vehicle metal panel **180** to which the advertising sign **10** may be attached, wherein the pivotal attaching means comprises a flexible sleeve **130** between each magnet **126** and the base **107** (Col. 2, lines 41 - 64; note Figs. 1A and 2 above).

Claim 3 depends upon Claim 2 and recites that the pivotal attaching means comprises a fastener **128** extending through each magnet **126**, its flexible sleeve **130** and the base **107** (Col. 2, lines 57-Col. 3, line 1; note Fig. 1A).

Claim 13 depends upon Claim 2 and recites that the advertising member **10** further comprises plural magnet receptacles **112** each extending below a remaining portion

of the base **107** around each receptacle **112** (Col. 2, lines 51-56; and note dimensional relationship in Fig. 1A).

Claim 14 depends upon Claim 13 and further recites that each magnet receptacle **112** extends along a portion of an adjacent side **106** (note Fig. 2).

Claim 15 depends upon Claim 14 and recites that each magnet receptacle **112** extends along a portion of an adjacent end **108** (note Figs. 1 and 2).

Claim 20 depends upon Claim 19 which in turn depends upon Claim 3 and further comprises a fastener **128** and flexible sleeve **130** with each of the magnets **126**, with all of the magnets **126** pivotal about an outer extremity **132** of the respective fastener **128** (Col. 2, line 57 - Col. 3, line 1).

Claim 21 depends upon Claim 20 and further recites that each fastener **128** comprises a beveled head **132** to facilitate pivoting of the respective magnet **126** (Col. 3, line 63 - Col. 3, line 1; note Fig. 1A).

Claim 24 depends upon Claim 3 and further recites that the base **107** is formed of a unitary and rectangular sheet defining four spaced corners, with the plural magnets **126** comprising at least four spaced magnets **126** each of which is mounted at a corner of the base **107** with each magnet **126** having a respective fastener **128** and a respective sleeve **130**, with each fastener **128** extending through the corresponding magnet **126** and corresponding sleeve **130** and the base **107** so that each magnet **126** is independently pivotal about an outer, beveled end **132** of the associated fastener **128**, with that portion of the base **107** adjacent each magnet **126** being recessed inwardly relative

to the adjacent side **106** and end **108** of the sign **10** (Col. 2, line 41-Col. 3, line 1; note Figs. 1A and 2).

Claim 25 depends upon Claim 24 and recites that each magnet **126** is dimensioned so that the upper side of each magnet **126** is recessed towards the base **107** relative to the portions of the adjacent side **106** and adjacent end **108** of the sign **10** and an opposing bottom side of the magnet **126** extends below portions of the adjacent side **106** and adjacent end **108** (Col. 2, lines 51-56; and note Figs. 1A and 2).

C. **Support for "Means plus function" Language in Claim 2**

The following identifies the structure in the specification that corresponds to the "means for pivotally attaching" language in Claim 2, as required by 35 CFR §41.37(c)(1)(v).

The full text of the means plus function language in Claim 2 is as follows:

> means for pivotally attaching each magnet to the base so that each magnet can pivot and adjust to differences in slope along a vehicle metal panel to which the advertising sign may be attached, wherein the pivotal attaching means comprises a flexible sleeve between each magnet and the base.

The above-quoted "means for pivotally attaching..." in Claim 2 comprises the flexible sleeve **130**, the fastener **128** or some other equivalent fastening mechanism, the aperture **127** through which the fastener extends, beveled head **132** on the fastener **128** and threads **114** in the molded extension **113** of the base **107** (Col. 2, line 57 - Col. 3, line 1).

VI. Grounds of Rejection to be Reviewed

The Final Office Action of February 28, 2006 frames the following rejections which are requested to be reviewed in this appeal:

A. Whether Claims 13-16 are unpatentable under 35 U.S.C. §112, second paragraph, with respect to the language at Claim 3, lines 3-4 reciting "plural magnet receptacles, each extending below a remaining portion of the base around each receptacle" (page 4 of February 28, 2006 Office Action).

B. Whether Claims 2, 3 and 19-25 are unpatentable under 35 U.S.C. §103 over European Patent Publication 415,194 ("EP '194") in view of U.S. Patent No. 4,052,806 to George ("George") (p. 5 of February 28, 2006 Office Action).

C. Whether Claims 13-17 are unpatentable under 35 USC §103 over EP '194 in view of George and U.S. Patent 3,245,165 to Podoloff ("Podoloff") (p. 6 of February 28, 2006 Office Action).

VII. Argument

A. Rejection of Claims 13-16 under 35 USC §112

At page 4 of the February 28, 2006 Office Action, the following is stated as the basis for rejecting Claims 13-16 as indefinite under the second paragraph of §112:

> In claim 13, lines 3-4, "below a remaining portion of the base around each receptacle" is indefinite since it is not clear what the patent owner is trying to state and further if the patent owner is trying to relate the remaining portion of the base not associated with the receptacles than the language is misdescriptive since the word "around" suggests that the remaining portion of the base extends about/around each receptacle which is inaccurate.

remaining portion of the base extends about/around each receptacle which is inaccurate.

Respectfully, however, the meaning of this language is clear from a review of the cross-section of Fig. 1A, where the magnet (when in place as shown by dashed lines) extends below that portion of the base **107** around the magnet receptacle defined by molded foot **110**. Accordingly, it is submitted that Claim 13 is clear and definite with respect to the recited subject matter.

B. **As to the Rejections Under 35 U.S.C. §103 of Claims 2, 3, 13-17 and 19-25: There is Substantial Objective Evidence of Non-obviousness**

The July 8, 2003 affidavit of Mrs. Sharon Elmer was submitted in the Amendment and Response to the June 12, 2003 first Office Action and is enclosed with Appendix B at Tab One. Mrs. Elmer is the President of HTH, Inc., the exclusive licensee of the '100 patent upon which this reissue application is based. Mrs. Elmer's affidavit at ¶¶ 2-8 demonstrates that HTH has enjoyed a significant commercial success since 1994 for the sign which is the subject of the claims at issue, with essentially no significant changes in advertising expenditures since 1994. These portions of Mrs. Elmer's affidavit are reproduced next:

> 2. HTH, Inc. Is the exclusive licensee under a number of patents issued to my husband, William A. Elmer. These patents are directed to vehicle advertising signage, systems, methods and designs. Among the signage-related patents of my husband for which HTH, Inc. is the exclusive licensee are the following: 4,667,428; D290,620; 4,839,975; 5,084,994; D327,333; D328,143; 5,210,970; 5,339,551; D368,934; 5,711,100; 5,918,397; D429,766; D433,454; D447,774; and D476,690.

3. Among these licensed patents, the products manufactured under license from U.S. Patent 5,711,100 have proven to be particularly commercially successful for HTH, Inc.

4. To illustrate this commercial success, there is set out next a chart listing the signs in accordance with the design of the '100 patent which were sold by HTH in relation to 1993, the first year in which these signs were sold (beginning in January of that year):

YEAR	PERCENT INCREASE FROM 1993
1994	276%
1995	218%
1996	281%
1997	445%
1998	636%
1999	618%
2000	470%
2001	391%
2002	415%

5. Despite the downturn in the U.S. economy which began in 2000, it can be seen that the annual sales of signs made according to the '100 patent have remained above the annual sales during 1993. Sales for calendar year 2003 are consistent with this prior history.

6. The above-listed sales levels for 1994-2002 were realized by HTH despite the facts that HTH did not significantly increase its advertising expenses during that time, and the signs made by HTH according to the '100 patent were on the order of twenty percent (20%) more expensive than HTH's "Window Wing" sign, which was selling extremely well prior to 1993 (the "Window Wing" was made to my husband's above-listed '994 and '551 patents).

7. Each of the signs sold by HTH referenced in the chart above contained all of the elements recited in the claims of the '100 patent and the new claims added in the reissue application. In discussions with customers who have purchased the signs made according to the

> '100 patent, I have learned that a number of the claimed features and the overall combination of features has contributed significantly to the commercial success of the signs manufactured and sold by HTH in accordance with the '100 patent.
>
> 8. For example, I have learned that customers rely upon (a) the stability of the sign while attached to a vehicle in operation, achieved in part through the recessing of the unitary base within the sides of the completely enclosed sign; (b) the use of multiple spaced magnets each employing a dish-shaped non-magnetic housing around the magnet to facilitate the easy removal of the sign, despite the hold-down capabilities of the multiple magnets; and (c) the ability of the sign to conform to the shape of different vehicle roof tops through the facile use of the flexible sleeve-fastener combination with the magnets, which further facilitates the decoupling of the magnets when the sign is removed.

This evidence demonstrates that there was a long-felt need and a failure of others to design a safe magnetic sign which can be easily attached and detached to an automobile rooftop in a facile manner, and that significant commercial success has been realized by Appellant's licensee for the design which is the subject of the claims on appeal. The Court of Appeals for the Federal Circuit on a number of occasions has confirmed that objective evidence of non-obviousness such as commercial success, long-felt need and the failure of others is relevant even during *ex parte* prosecution. *In re Rouffet*, 149 F.3d 1350, 1355, 47 U.S.P.Q. 2d 1453, 1458 (Fed. Cir. 1998); *In re Huang*, 100 F.3d, 135,139, 40 U.S.P.Q. 2d 1685, 1689 (Fed. Cir. 1996); and *In re GPAC, Inc.*, 57 F.3d 1573, 1580, 35 U.S.P.Q. 2d 1116, 1121 (Fed. Cir. 1995).

Mrs. Elmer's above-quoted affidavit was entered, but the obviousness rejection on the combination of the EP'194 and the George references was continued, with the following remarks being addressed to Mrs. Elmer's affidavit:

> The declaration of Sharon W. Elmer fails to provide a proper nexus between the claimed invention and the purported success in the marketplace. The structure defined by Sharon W. Elmer with regard to the success, recessing of the unitary base, dish-shaped housing, etc. are not defined in Claims 2 and 3. Further, the evidence submitted is not sufficient to prove commercial success since the increases in sales could be do to increases in advertising, reducing the sales price of the product, etc. (October 24, 2003 Office Action, pages 6-7).

In response to the above-noted criticisms of Mrs. Elmer's first affidavit in the October 24, 2003 Office Action, a supplemental affidavit dated January 21, 2004 was filed with an Amendment and Response. This supplemental affidavit is attached as Tab Two in Appendix B. The salient portions of Mrs. Elmer's supplemental affidavit are reproduced next:

> 2. In my earlier affidavit at ¶¶7 and 8, I pointed out that I had learned from my contacts with HTH customers that the commercial success of HTH signs was due to the distinctive combination of features recited in both the original and added claims presently in the reissue application. While in ¶8 I referenced specific features, I did not intend to limit those features.
>
> 3. In fact, the commercial success enjoyed by the HTH signs is also based upon the combination of features recited in Claims 2, 3 and 13-17. Specifically, the design employed in all of the signs which were the subject of the sales referenced in my earlier affidavit employ an advertising member having a base, ends and sides formed together into a completely enclosed hollow body, with plural magnets and means such as a fastener and an associated flexible sleeve attaching each magnet to the base so that each magnet can pivot and adjust to differences in slope along the vehicle metal panel to which the sign is attached (Claims 2 and 3). Further, the recessing of the magnets using portions of the sides of the sign contribute significantly to the stability of the signs in use, a factor which has contributed to commercial success (Claims 13-16). The use of a coating extending along the bottom of each

magnet is a feature which provides a particular commercial benefit, in that it avoids scratching of the roof surface (Claim 17).

4. As I pointed out in my earlier affidavit at ¶6, HTH realized the significant increase in sales levels from 1994-2002 relative to the sales in 1993, without significant increase in HTH's advertising expenses during that time. In fact, taking into account the annual cost of living increase and/or inflation figure for each year from 1994 through 2002 and occasional catalog reprinting costs, the increase in advertising expenses for each year in comparison to the advertising expenses in 1993 as a percentage are at least an order of magnitude less than the increase in sales (relative to 1993) for each year.

5. Thus, the commercial success enjoyed by HTH for the sign design described in Claims 1-25 of the pending application very definitely was not affected by increases in advertising expenditures.

6. As I pointed out in my earlier affidavit at ¶6, the signs covered by Claims 1-25 of this application are substantially more expensive than HTH's best-selling advertising signs prior to 1993.

7. The commercial success enjoyed by HTH for the sign design covered by Claims 1-25 of the application most definitely is not related to any reduction in the sales price of these signs. In fact, HTH has never reduced the sales price; the sales price has only been increased as was necessary to take into account cost of living and/or inflating factors.

Mrs. Elmer's supplemental affidavit was entered with the third Office Action of June 4, 2004, but Mrs. Elmer's two affidavits were considered of no consequence in the following statement:

> The examiner believes that the declarations of Sharon W. Elmer fails to provide a proper nexus between the claimed invention and the purported success in the marketplace. Sharon W. Elmer fails to provide sufficient evidence that the

> commercial success of the invention is based upon the features of the claimed invention. Further, the evidence submitted is not sufficient to prove commercial success since the increase in sales could be do to a competitor going out of business, the total number of cartop signs being sold has increased significantly, etc. (June 4, 2004 Office Action, pages 9 and 10).

With due respect, Appellant submits that a commercial success nexus has been clearly demonstrated under the controlling CAFC decisions. The term "nexus" is defined in Webster's Unabridged Third New International Dictionary as a "connection, interconnection, tie, link." Mrs. Elmer's original affidavit (Tab One) and her supplemental affidavit (Tab Two) show a clear, unequivocal link between the claimed invention and the commercial success that is enjoyed by the licensee of Applicant's invention. The seminal case in the Federal Circuit dealing with "nexus" is Demaco Corp. v. F. Von Langsdorff Licensing Ltd., 851 F.2d 1387, 7 U.S.P.Q. 2d 1222 (Fed. Cir. 1988), cert. denied 488 U.S. 956 (1988). In Demaco, the court unequivocally stated that:

> A *prima facie* case of nexus is generally made out when the patentee shows both that there is commercial success, and that the (product or method) that is commercially successful is the invention disclosed and claimed in the patent. (7 U.S.P.Q. 2d at 1226).

Speaking for the court, Judge Newman went on to specifically reject the type of additional, negative requirements sought to be imposed in both the October 24, 2003 and June 4, 2004 Office Actions in the following language:

> A patentee is not required to prove as part of its prima facie case that the commercial success of the patented invention is *not* due to factors other than the patented invention. It is sufficient to show that the commercial success was of the patented invention itself. A requirement for proof of the negative of all imaginable contributing factors would be unfairly burdensome, and contrary to the ordinary rules of evidence.

> *See 9 Wigmore* §2486 at 291 ("Thus, in most actions of *tort* there are many possible justifying circumstances...; but it would be both unfair and contrary to experience to assume that one of them was probably present and to require the plaintiff to disprove the existence of each one of them") (emphasis in original). See also *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1382, 231 USPQ 81, 92 (Fed. Cir. 1986), *cert. denied*, 107 S.Ct. 1606 (1987), where the court stated that "the record shows that advertising makes those in the industry - hospitals, doctors, and clinical laboratories - aware of the diagnostic kits but does not make these potential users buy them; the products have to work, and there is no evidence that that is *not* the case here or that the success was *not* due to the merits of the claims sandwich assays - clearly contrary to the district court's finding." (Emphasis in original). (7 U.S.P.Q. 2d at 1227).

C. Claims 2 and 3 are not Obvious from the Combination of the EP '194 and George References

1. Preliminary Note Regarding the EP '194 Reference

An English translation of the EP '194 reference was apparently not available at the time the reference was cited. During a telephone conversation with the Examiner, it was agreed that the Canadian counterpart of the EP'194 reference (CN Pat. 2,041,396, cited in the '100 application) could be used by both the Examiner and Appellant for purposes of evaluating the EP'194 reference. A copy of the Canadian counterpart is included in Appendix B at Tab Three and is referred to from time to time as "the Canadian Patent."

2. **The Disclosure in the EP '194 Reference**

The EP '194 reference teaches *inter alia* a magnetic assembly for use in supporting a rooftop sign for vehicles. A copy of the Fig. 6 cross-sectional view of the sign disclosed in EP '194 is set out next:

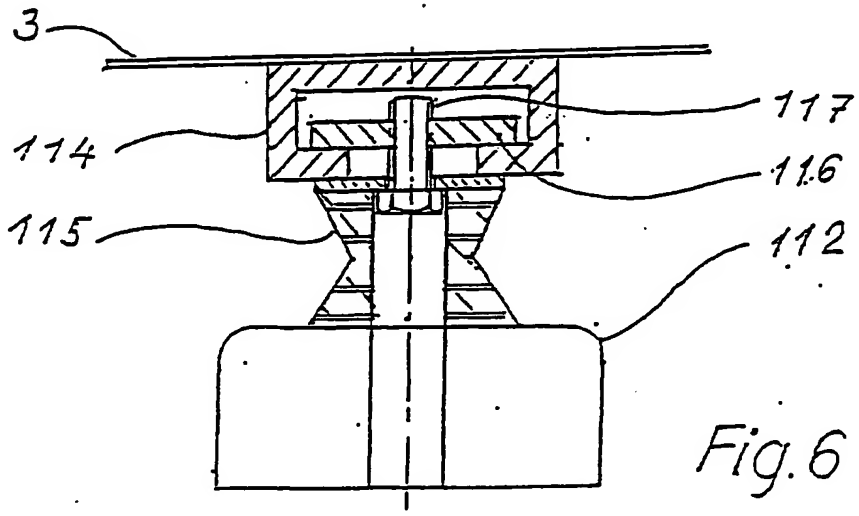


Fig. 6

Referring to page 4 of the English translation of the EP '194 reference in the Canadian Patent, the construction shown in Fig. 6 above is described as three permanent magnets **112** disposed on rails **113**, **114** in a linearly slidable manner. The rails, in turn, are mounted on the planar base area **3** of the sign box **1** (Fig. 4). A resilient cylindrical member **115** of rubber having a restricted diameter in its middle portion is positioned between the rail **114** and the magnet **112**, with anchoring of the magnet **112** effected by means of a bolt **117** extending through the central bore of the resilient cylindrical member **115**. A nut **116** positioned inside the rail **114** holds the nut in place.

3. The Basis for Rejecting Claims 2 and 3 on EP '194 with George

In the Final Office Action, the following statement was made as a grounds for rejecting Claims 2 and 3 on the combination of the EP '194 and George references:

> European Patent No. '194 shows in Figs. 1-6 an advertising sign comprising an advertising member (1) having a base (3) **114**, plural magnets (**112**), and means (**115, 116, 117**) for pivotally attaching each magnet to the base *wherein the pivotal attaching means includes a flexible sleeve (**115**)* (February 28, 2006 final Office Action, page 5; emphasis added).

Thus, there is a substantial issue as to whether the EP '194 reference teaches "means for pivotally attaching each magnet...(which) comprises a flexible sleeve between each magnet and the base." Appellant respectfully submits that the evidence in the record clearly establishes that the EP '194 reference does not disclose such "means".

4. EP'194 Does Not Teach a Flexible Sleeve for Pivoting

With respect to this "flexible sleeve" issue, Applicant submitted the Rule 132 affidavits of Applicant William A. Elmer with attachments A-J (Tab Four), Julian C. Renfro with attachments A-D (Tab Five) and Paul J. Halyard, P.E. with attachments A and B (Tab Six).

Attention is first drawn to the Renfro affidavit, Tab Five. Mr. Renfro is a seasoned registered patent attorney, having been in corporate and private practice for 49 years, during which time he has prosecuted nearly 1000 mechanical applications. (Tab Five, ¶¶ 1 and 2). Mr. Renfro analyzed the claims at issue in this matter with respect to the

construction shown in the EP'194 reference. At ¶¶ 5-9 of his affidavit, Mr. Renfro discusses the disclosure contained in the EP'194 reference, the English translation of which in the above-referenced Canadian Patent was relied upon by him. Pointing to a dictionary definition of the word "sleeve," Mr. Renfro finds that the construction of the magnet **112** and resilient cylinder **115** disclosed in the EP'194 reference does not at all suggest a "sleeve" as that term is used in Claim 2. Mr. Renfro notes in ¶ 8 of his affidavit that the absence of a true "sleeve" construction in connection with the resilient member **115** results in the resilient member not having the capability of being placed under compression by the tightening of bolt **117**. In contrast, the flexible sleeve recited in Claims 2 and 3 is capable of being placed in compression, as indicated by the phantom lines in Figures 1A of the '100 patent. Mr. Renfro also notes at ¶ 10 of his affidavit that there is no suggestion that the construction in the EP'194 reference is capable of permitting the magnet to pivot in order to conform to the shape of the vehicle roof. Mr. Renfro notes that the term "spatially movable at least in a restricted manner" does not at all suggest pivoting, since the common definitions of the word "spatial" do not remotely suggest such a pivoting action.

In Appellant's affidavit (Tab Four) at ¶¶ 11 and 12, Appellant discussed having fabricated a rail, cylinder and magnet unit like that shown in Figure 6 of the EP'194 reference. Appellant found that the bottom magnets of the unit do not easily pivot about the centerline of the magnet.

Appellant respectfully submits, however, that the most telling evidence indicating that the flexible sleeve construction to achieve pivoting as recited in Claims 2

and 3 would not have been obvious from the EP'194 reference is found in the affidavit of Paul J. Halyard (Tab Six). Mr. Halyard is a Professional Engineer registered in the States of Florida, Alabama, Georgia and Colorado. He has 40 years of experience in a broad spectrum of the engineering sciences. When asked to evaluate whether the magnet assembly construction described in the '100 patent would have been obvious to a skilled mechanical practitioner from the disclosure in the Canadian Patent, he stated that such an evaluation is well within his background and experience (Tab Six, ¶¶ 1 and 2). As part of his evaluation, Mr. Halyard also reviewed a November 2000 test report performed on the magnet-mounted rooftop signs manufactured and sold by Appellant's exclusive licensee, HTH, Inc. A copy of that report is appended as Attachment B to Mr. Halyard's affidavit.

After completing a review of these materials and evaluating the disclosure in the EP'194 reference as found in the '396 Canadian Patent, Mr. Halyard reached the very definite conclusion that the magnet assembly construction disclosed in the '100 patent and recited in Claims 2 and 3 would not have been obvious to one of ordinary skill from a review of the EP'194 reference.

First, Mr. Halyard points out at ¶7 that there is nothing in the written text of the '396 Canadian Patent which suggests that the resilient member **115** permits the lower face of the magnet to be pivoted. Second, Mr. Halyard observes at ¶7 that if the flexure capability of the resilient member **115** is sufficient to permit pivoting of the magnet face, then the construction would not function well under wind-loading conditions. But third, Mr. Halyard also notes at ¶7 that if the resilient cylinder ¶115 in the EP '194 reference is provided with sufficient rigidity to avoid these difficulties under wind loading conditions,

then it is unlikely that the cylinder will have sufficient flexibility to permit pivoting of the face of the magnet.

Fourth, Mr. Halyard states at ¶8 that if one assumes pivoting of the EP '194 magnet does take place, the pivot point is substantially above the magnet along the cylinder **115**. In contrast, Mr. Halyard notes that the flexible sleeve-fastener construction recited in Claims 2 and 3 permits the magnet to be mounted closer to the base of the sign within the magnet receptacle with the pivot point at the outer extremity of the fastener, thereby reducing potential wind force hazards during use on a vehicle.

In summary, it is respectfully submitted that the combined evidence established by these affidavits clearly demonstrate that the resilient cylinder **115** of the EP'194 reference under no circumstances constitutes a "flexible sleeve" within the meaning of the language of Claim 2.

The secondary George reference is relied upon at the top of page 6 of the Office Action as disclosing a sign having a base, ends and sides. However, George is entirely deficient with respect to the limitations of the EP '194 reference, as discussed above.

5. <u>Claim 3 Clearly Defines Over the EP'194 and George References</u>

Claim 3 is separately patentable over Claim 2 upon which it depends, because Claim 3 specifically recites that the "attaching means comprises a fastener *extending through each magnet, its flexible sleeve and into the base.*" In contrast, the EP'194 reference does <u>not</u> disclose a fastener *extending through* the resilient cylinder **115**;

instead as shown in Fig. 6 of the EP'194 reference, fastener **117** is positioned *at the top of* the resilient cylinder **115**. Accordingly, Claim 3 clearly defines over the applied references.

D. Claims 13-17 Are Not Obvious From the Teachings of the EP'194, George and Podoloff References

Claims 13-17 all depend upon and further limit Claim 2 and are therefore patentable for those reasons outlined above with respect to Claim 2. Further, however, Claims 13-17 are not rendered obvious from the combined teachings of the EP'194, George and Podoloff references as discussed next.

1. Claim 13

Claim 13 depends upon Claim 2 and recites plural magnet receptacles each extending below a remaining portion of the base around each receptacle.

The Podoloff reference is relied upon at pp. 6-7 of the February 28, 2006 Final Office Action with respect to the "plural magnet receptacles" language in Claim 13. Respectfully, however, the "resiliently deformable sleeve of generally annular shape generally designated by the numeral **14**" as recited at col. 2, lines 61-63 in the Podoloff reference does not meet the "magnet receptacles" language.

2. Claims 14 and 15

Claim 14 depends upon Claim 13 and Claim 15 depends upon Claim 14, with each of these dependent claims reciting that the magnet receptacle extends along a portion of an adjacent side (Claim 14) and along a portion of an adjacent end (Claim 15). Thus, each of Claims 14 and 15 form a separate group. Of course, the "adjacent side" and

"adjacent end" in these two claims is that recited in Claim 2; that is, the adjacent side and end of *the advertising member*. Podoloff does not at all disclose that the "resiliently deformable sleeve **14**" extends along either an adjacent side or an adjacent end of the sign **20** (Fig. 2 in Podoloff). Accordingly, the subject matter of Claims 14 and 15 is not disclosed in the Podoloff reference and, since the EP'194 and George references do not meet the deficiencies of Podoloff, then Claims 14 and 15 are clearly patentable over the applied references.

3. Claim 16

Claim 16 depends upon Claim 15 and is also patentable for the reasons discussed above with reference to Claims 2, 13, 14 and 15.

4. Claim 17

Claim 17 depends upon Claim 2; since the Podoloff reference does not meet the deficiencies of the EP'194 and George references as discussed above with respect to Claim 2, then the dependency of Claim 17 upon Claim 2 renders that claim patentable as well.

E. Claims 19-25 Are Not Obvious From the Teachings of the EP'194 and George References

Claims 19-25 depend upon and further limit Claim 3, and are therefore patentable over the combination of the EP'194 and George references for those reasons described in Section C above.

Appellant acknowledges that the patentability of Claim 19 stands or falls with Claim 3. However, it is respectfully submitted that each of Claims 20-25 are independently patentable over Claim 3, as discussed next.

1. **Claim 20**

Claim 20 depends upon Claim 19 (and thus, Claim 3) and further comprises "a fastener and flexible sleeve with each of the magnets, with all of the magnets pivotal *about an outer extremity of the respective fastener.*" The EP'194 reference is devoid of any suggestion for providing a construction where the magnets are pivotal about *an outer extremity* of the fastener. In this regard, the prior discussion of the affidavits at Tabs Four, Five and Six is pertinent. The EP'194 reference discloses a fastener **117** the outer extremity of which is positioned some distance from the magnet **112**; thus the magnets cannot be "pivotal about an outer extremity of the ... fastener" within the language of Claim 20.

2. **Claim 21**

Claim 21 depends upon Claim 20 and specifically recites that each fastener comprises a beveled head to facilitate pivoting and therefore forms a separate and independent group. Again, the EP'194 reference is devoid of any disclosure of the fastener having a beveled head so as to facilitate pivoting (indeed, this reference is entirely devoid of any suggestion that the magnet can be pivoted).

3. **Claims 22 and 23**

These claims stand or fall with Claim 21, upon which they depend.

4. Claim 24

Claim 24 comprises a separate group, and recites a combination of the elements specified in Claims 20 and 21, with the further limitation "wherein that portion of the base adjacent each magnet is recessed inwardly relative to the adjacent side and end of the sign," thereby incorporating the elements recited in Claims 15 and 16.

The Final Office Action of February 28, 2006 at p. 6 addresses Claim 24 with the following statement:

> In regard to claim 24, the base is formed of a unitary sheet (3) and when the base of EP'194 is modified in view of George it would be rectangular in shape. EP'194 shows in figure 4 the idea of placing one of the magnets in each of the corners of the base. EP'194 shows in figure 6 a fastener (117) and flexible sleeve (115). EP'194 does not disclose making the head of the fastener beveled. It would have been an obvious matter of design choice to make the head of the fastener beveled shaped since there appears to be no advantage to making the head beveled and the shape of the fastener head taught by EP'194 would work equally well. The base includes a portion (sheet 3) that is recessed with respect to the rest of the base (114).

Thus, it is conceded in the Final Office Action that the EP'194 reference does not disclose making the head of the fastener beveled, it being suggested that this is a "obvious matter of design choice"; however, this is clearly not the case, since this feature is essential to obtaining the pivoting of the magnet, a benefit not at all suggested in the EP'194 reference.

Further, the above-quoted statement regarding Claim 24 suggesting that the "base includes a portion (sheet 3) that is recessed with respect to the rest of the base (114)" is, with all due respect, a distortion of the EP'194 reference. At p. 4, lines 25-

30, the base area **3** is described as being "planar" and element **114** is not described as being part of the base but instead one of two "rails **113, 114**".

For these reasons, it is respectfully submitted that Claim 24 clearly distinguishes over the combination of the EP'194 and George references.

5. Claim 25

Claim 25 depends upon Claim 24 and recites specifically the nature of the recessed relationship between the magnet and the adjacent side and adjacent end with the bottom of the magnet extending below portions of the adjacent side and adjacent end.

In the Final Office Action of February 28, 2006 at p.6, the following remarks are made with respect to the rejection of Claim 25:

> In regard to claim 25, as broadly defined, the upper surface each of the magnets (112) is considered to be "recessed toward the base" and the opposing bottom of the magnet extends below the portions of the adjacent sides and adjacent end.

The problem with the above-stated position that there are no adjacent sides and adjacent ends of the sign in EP '194. Further, the magnet **112** shown in the reference is not recessed with respect to *anything;* instead, each magnet protrudes prominently from the base **3**.

Accordingly, Appellant respectfully submits that Claim 25 forms a separate and independent group, and patentably distinguishes over the combination of the EP'194 and George references.

F. **There is no Teaching or Suggestion in the EP'194 Reference or the George Patent for Combining Them**

As is discussed in the summary of Appellant's invention above, the advertising member which is the subject of this application is concerned with providing magnetic means for attaching a sign body to an automobile in a rapid and facile manner, with a construction that reduces wind drag. Additionally, Appellant's invention is directed to providing a construction that has pivotal magnets so as to be adjustable for curvature on the vehicle panel (i.e., the roof) to which the advertising member is attached.

Of course, the George reference is not at all concerned with wind drag, since the sign is bolted directly to the top of the vehicle; while the reference does disclose a depending skirt, its function is to prevent "moisture and other elements from entering into the device." (George, col. 3, lines 29-39). While the EP '194 patent does express a general concern for achieving good aerodynamics, the reference discloses accomplishing this with a triangular or "wedge" shaped sign body, and criticizes a rectangular-shaped sign body like that disclosed by Appellant. The reference is not at all concerned with permitting the magnets to pivot so as to conform as to the curvature of different roof top configurations. Accordingly, under those cases cited next, Applicant respectfully submits that there is no teaching or suggestion for combining these two references. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997); *McGinley v. Franklin*, 262 F.3d 1339, 1351 (Fed. Cir. 2001) (since "[t]he genius of invention is often a combination of known elements which in hindsight seems preordained," a lesser restraint could invalidate inventions that should be afforded patent protection); *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1348 (Fed. Cir. 2000); *In re Kotzab*, 217 F.3d 1365, 1371

(Fed. Cir. 2000). (Thus there must be a "finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention to make the combination in the manner claimed... Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing B, and another containing C, and on that basis alone declare the invention obvious)"; and *see* McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351 (Fed. Cir. 2001).

Appellant respectfully submits that Claims 13-16 meet the requirements under 35 U.S.C. §112. Further, it is respectfully submitted that Claims 2, 3, 13-17 and 19-25, by their very language, patentably distinguish over the reference applied in rejecting those claims under 35 U.S.C. §112, and that there is not a *prima facie* case of obviousness made out in the combined teachings of those references. Finally, however, even if the Board finds that there is a *prima facie* case made out in the combined teachings of those references, Appellant urges that the accompanying affidavits of Sharon W. Elmer clearly establish a commercial success that finds a nexus in the claimed invention sufficient to overcome any such *prima facie* case.

An infringement action involving the underlying '100 patent is pending in the United States District Court for the Middle District of Florida; therefore, Appellant respectfully requests the Board's expedient handling of this appeal.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that three copies of this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Appeal Briefs - Patents, Commissioner For Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on this 18th day of October, 2006.

Shirley H. McDonald

APPENDIX A

CLAIMS UNDER APPEAL

2. An advertising sign for removably mounting onto a metal panel of a motor vehicle, comprising:

an advertising member having a base, ends and sides formed together into a completely enclosed hollow body;

plural magnets; and

means for pivotally attaching each magnet to the base so that each magnet can pivot and adjust to differences in slope along a vehicle metal panel to which the advertising sign may be attached, wherein the pivotal attaching means comprises a flexible sleeve between each magnet and the base.

3. The advertising sign recited in Claim 2 wherein the pivotal attaching means comprises a fastener extending through each magnet, its flexible sleeve and into the base.

13. The advertising sign recited in Claim 2 wherein the advertising member further comprises:

plural magnet receptacles, each extending below a remaining portion of the base around each receptacle.

14. The advertising sign recited in Claim 13 wherein each magnet receptacle extends along a portion of an adjacent side.

15. The advertising sign recited in Claim 14 wherein each magnet receptacle extends along a portion of an adjacent end.

16. The advertising sign recited in Claim 15 wherein each magnet receptacle surrounds at least one of the magnets.

17. The advertising sign recited in Claim 2 further comprising a plastic coating extending across a bottom surface of each magnet.

19. The advertising sign recited in Claim 3 wherein the base comprises a unitary and rectangular sheet of plastic material, with the plural magnets comprising at least four spaced magnets each of which is mounted at a corner of the base.

20. The advertising sign recited in Claim 19 further comprising a fastener and flexible sleeve with each of the magnets, with all of the magnets pivotal about an outer extremity of the respective fastener.

21. The advertising sign recited in Claim 20 wherein each fastener comprises a beveled head to facilitate pivoting of the respected magnet.

22. The advertising sign recited in Claim 21 further comprising a lighting assembly mounted along an inner surface of the rectangular base, the ends and sides of the members being sufficiently translucent to permit light to emit therethrough.

23. The advertising sign recited in Claim 22 wherein the lighting assembly extends lengthwise along the rectangular base.

24. The advertising sign recited in Claim 3 further comprising:

the base formed of a unitary and rectangular sheet defining four spaced corners, with the plural magnets comprising at least four spaced magnets each of which is mounted at a corner of the base with each magnet having a respective fastener and a respective sleeve, with each fastener extending through the corresponding magnet and corresponding sleeve and the base so that each magnet is independently pivotal about an outer, beveled end of the associated fastener; and wherein

that portion of the base adjacent each magnet is recessed inwardly relative to the adjacent side and end of the sign.

25. The advertising sign recited in Claim 24 wherein each magnet is dimensioned so that an upper side of each magnet is recessed toward the base relative to the portions of the adjacent side and adjacent end of the sign, and an opposing bottom magnet side extends below portions of the adjacent side and adjacent end.

APPENDIX B

EVIDENCE SUBMITTED PURSUANT TO 37 CFR §1.132

I. **Evidence in the Record Under 37 CFR §1.32 Demonstrating Commercial Success**

Tab One Affidavit of Sharon W. Elmer dated July 8, 2003 submitted with the July 10, 2003 Amendment and Response.

Tab Two Supplemental affidavit of Sharon W. Elmer dated January 21, 2004 submitted with January 26, 2004 Amendment and Response.

II. **Evidence in the Record Under 37 CFR §1.132 Demonstrating Deficiencies in the Teachings of the EP 415, 194 (EP'194) Reference**

Tab Three Canadian Patent 2,041,396 (counterpart of EP'194).

Tab Four Affidavit of William A. Elmer dated July 8, 2003 together with Attachments A - J submitted with July 10, 2003 Amendment and Response.

Tab Five Affidavit of Julian C. Renfro, Esq. Dated July 8, 2003 together with Attachments A - D submitted with July 10, 2003 Amendment and Response.

Tab Six Affidavit of Paul J. Halyard, P.E. dated July 9, 2003 together with Attachments A and B submitted with the July 10, 2003 Amendment and Response.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

For: **VEHICLE ADVERTISING SIGN, SYSTEM AND METHOD**

Mr. Brian Green
Examiner
Art Unit 3611

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

AFFIDAVIT OF SHARON W. ELMER UNDER 37 C.F.R. § 1.132

State of Florida :
:
County of Orange :

Sharon W. Elmer, having first appeared before the undersigned officer who is duly authorized to administer oaths in the State of Florida, did depose and say:

1. I am the President of HTH, Inc., a Florida corporation with its office at 711 Jackson Street, Winter Park, Florida, and make this affidavit based upon my personal knowledge.

2. HTH, Inc. is the exclusive licensee under a number of patents issued to my husband, William A. Elmer. These patents are directed to vehicle advertising

signage, systems, methods and designs. Among the signage-related patents of my husband for which HTH, Inc. is the exclusive licensee are the following: 4,667,428; D290,620; 4,839,975; 5,084,994; D327,333; D328,143; 5,210,970; 5,339,551; D368,934; 5,711,100; 5,918,397; D429,766; D433,454; D447,774; and D476,690.

3. Among these licensed patents, the products manufactured under license from U.S. Patent 5,711,100 have proven to be particularly commercially successful for HTH, Inc.

4. To illustrate this commercial success, there is set out next a chart listing the signs in accordance with the design of the '100 patent which were sold by HTH in relation to 1993, the first year in which these signs were sold (beginning in January of that year):

YEAR	PER CENT INCREASE FROM 1993
1994	276%
1995	218%
1996	281%
1997	445%
1998	636%
1999	618%
2000	470%
2001	391%
2002	415%

5. Despite the downturn in the U.S. economy which began in 2000, it can be seen that the annual sales of signs made according to the '100 patent have remained above the annual sales during 1993. Sales for calendar year 2003 are consistent with this prior history.

6. The above-listed sales levels for 1994-2002 were realized by HTH despite the facts that HTH did not significantly increase its advertising expenses during that time, and the signs made by HTH according to the '100 patent were on the order of twenty percent (20%) more expensive than HTH's "Window Wing" sign, which was selling extremely well prior to 1993 (the "Window Wing" was made to my husband's above-listed '994 and '551 patents).

7. Each of the signs sold by HTH referenced in the chart above contained all of the elements recited in the claims of the '100 patent and the new claims added in the reissue application. In discussions with customers who have purchased the signs made according to the '100 patent, I have learned that a number of the claimed features and the overall combination of features has contributed significantly to the commercial success of the signs manufactured and sold by HTH in accordance with the '100 patent.

8. For example, I have learned that customers rely upon (a) the stability of the sign while attached to a vehicle in operation, achieved in part through the recessing of the unitary base within the sides of the completely enclosed sign; (b) the use of multiple spaced magnets each employing a dish-shaped non-magnetic housing around the magnet to facilitate the easy removal of the sign, despite the hold-down capabilities of the multiple magnets; and (c) the ability of the sign to conform to the

shape of different vehicle roof tops through the facile use of the flexible sleeve-fastener combination with the magnets, which further facilitates the decoupling of the magnets when the sign is being removed.

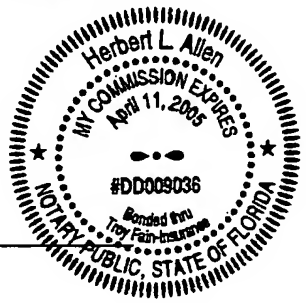
FURTHER AFFIANT SAYETH NAUGHT.

Sharon W. Elmer

Subscribed and sworn to before me
this 8th day of July, 2003.

Notary Public
My commission expires:

Personally known to me ✓
Produced identification of:



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

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Mr. Brian Green
Examiner
Art Unit 3611

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

SUPPLEMENTAL AFFIDAVIT OF SHARON W. ELMER UNDER 37 C.F.R. § 1.132

State of Florida :
:
County of Orange :

Sharon W. Elmer, having first appeared before the undersigned officer who is duly authorized to administer oaths in the State of Florida, did depose and say:

1. I am the same Sharon W. Elmer that earlier made an affidavit under 37 C.F.R. §1.132 in the above-identified patent application on July 8, 2003. This affidavit is submitted to supplement the earlier affidavit with respect to the following three matters for which Examiner Green expressed concern in the October 24, 2003 Office Action:

a. whether the commercial success was related to the inventions defined in Claims 2 and 3;

b. whether the commercial success was due to increases in advertising; and

c. whether the commercial success was due to reductions in the sales price of the HTH signs.

A. <u>The Sign Design Enjoying Commercial Success Employs the Construction Features of Claims 2, 3 and 13-17</u>

2. In my earlier affidavit at ¶¶7 and 8, I pointed out that I had learned from my contacts with HTH customers that the commercial success of HTH signs was due to the distinctive combination of features recited in both the original and added claims presently in the reissue application. While in ¶8 I referenced specific features, I did not intend to limit those features.

3. In fact, the commercial success enjoyed by the HTH signs is also based upon the combination of features recited in Claims 2, 3 and 13-17. Specifically, the design employed in all of the signs which were the subject of the sales referenced in my earlier affidavit employ an advertising member having a base, ends and sides formed together into a completely enclosed hollow body, with plural magnets and means such as a fastener and an associated flexible sleeve attaching each magnet to the base so that each magnet can pivot and adjust to differences in slope along the vehicle metal panel to which the sign is attached (Claims 2 and 3). Further, the recessing of the magnets using portions of the sides of the sign contribute significantly

to the stability of the signs in use, a factor which has contributed to commercial success (Claims 13-16). The use of a coating extending along the bottom of each magnet is a feature which provides a particular commercial benefit, in that it avoids scratching of the roof surface (Claim 17).

B. HTH Has Not Increased Its Advertising Expenditures

4. As I pointed out in my earlier affidavit at ¶6, HTH realized the significant increase in sales levels from 1994-2002 relative to the sales in 1993, without significant increase in HTH's advertising expenses during that time. In fact, taking into account the annual cost of living increase and/or inflation figure for each year from 1994 through 2002 and occasional catalog reprinting costs, the increase in advertising expenses for each year in comparison to the advertising expenses in 1993 as a percentage are at least an order of magnitude less than the increase in sales (relative to 1993) for each year.

5. Thus, the commercial success enjoyed by HTH for the sign design described in Claims 1-25 of the pending application very definitely was not affected by increases in advertising expenditures.

C. HTH Did Not Reduce the Sales Price of the Signs Covered by Claims 1-25

6. As I pointed out in my earlier affidavit at ¶6, the signs covered by Claims 1-25 of this application are substantially more expensive than HTH's best-selling advertising signs prior to 1993.

7. The commercial success enjoyed by HTH for the sign design covered by Claims 1-25 of the application most definitely is not related to any reduction in the sales price of these signs. In fact, HTH has never reduced the sales price; the sales price has only been increased as was necessary to take into account cost of living and/or inflation factors.

8. Thus, the commercial success of the HTH sign design according to Claims 1-25 in this application is not at all related to any reductions in prices.

FURTHER AFFIANT SAYETH NAUGHT.

Sharon W. Elmer

Subscribed and sworn to before me
this 21st day of January, 2004.

Notary Public
My commission expires:

Personally known to me ✓
Produced identification of:

Consommation et Corporations Canada
Bureau des brevets
Ottawa, Canada
K1A 0C9

Consumer and Corporate Affairs Canada
Patent Office

REISSUE LITIGATION

(21) (A1) 2,041,396
(22) 1991/04/29
(43) 1992/10/30

(51) INTL.CL.[5] G09F-021/04; B60R-013/00

(19)(CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Indicating Sign for Motor Vehicles

(72) Muggli, David - Switzerland ;

(73) Same as inventor

(57) 14 Claims

Canada

Abstract

An indicating sign for attachment on the roof of a motor vehicle, consisting of a closed box with indicating symbols and/or indicating inscriptions such as "Taxi", "Police" or the like.

For reducing its air resistance and for ensuring at the same time the visibility of the information provided thereon from all sides, the box is designed in the shape of a pyramid.

The invention relates to an indicating sign for attachment on the roof of a motor vehicle, consisting of a closed box with indicating symbols and/or indicating inscriptions such as "Taxi", "Police" or the like.

In a known illuminated sign box for attachment on the vehicle roof, which comprises a beam-like illuminated sign that can be integrated therein and has indicating symbols or indicating inscriptions, said illuminated sign has a configuration which is curved in roof-like manner, with two parallel rectilinear lower edges and two also parallel, but curved side edges. It may have a constant cross-section corresponding to the shape of the side edges and having preferably the form of a parabola. The illuminated sign box itself can be clamped, in the manner of a roof rack or carrier, in the two drains extending in the longitudinal direction of the vehicle.

The construction of the illuminated sign box and the attachment thereof to the vehicle roof are such that the ingress of water between roof and carrier as well as between carrier and illuminated sign can be prevented. This measure, as well as the curved configuration of the surface of illuminated sign and box, is to render possible that brush rolls can be moved across the illuminated sign box when the vehicle is cleaned in an automatic car wash.

Although this suggested configuration of the illuminated sign box, in terms of aerodynamics, seems to be clearly better than that of prior illuminated signs with square configuration, the air resistance of this illuminated sign box according to this proposal, especially at highway speeds, nevertheless is not negligible. A further disadvantage of the illuminated sign box mentioned, which is significant in terms of advertising, is that the necessary information can be applied only to the front and rear sides thereof and, thus, can be read only from the driving direction or from the opposite direction. Furthermore, mounting and demounting of the illuminated sign box in

question, necessitating each time tightening and untightening, respectively, of gripping claws by means of screws, also is somewhat troublesome.

The object to be met by the invention is to provide an indicating sign for vehicles, in which the disadvantages of known signs are avoided. It is to have a configuration which is advantageous in terms of aerodynamics, while having at the same time a good advertising effect. A further effect to be achieved is that handling of the indicating sign during attachment thereof on the vehicle roof as well as detachment thereof is facilitated and can be carried out as fast as possible. This object is met according to the invention by the design feature of the characterizing part of claim 1.

Due to its wedge-like configuration, the subject matter of the invention presents to the air stream a considerably lower resistance than a beam-like illuminated sign box having a length located transversely to the air stream that corresponds to the vehicle width. The three side faces of the pyramid-shaped box, which extend obliquely upwardly, render possible that the information provided therein can be seen from all sides.

Features of a particularly advantageous development of the invention are subject matter of the dependent claims 2 to 13.

The invention will be elucidated in more detail by way of example in the form of preferred embodiments shown in the drawings, in which

Figure 1 shows a side view of an embodiment of an indicating sign for motor vehicles according to the invention in the operative position on the roof of a motor vehicle, which is partly cut away;

Figure 2 shows a top plan view of the indicating sign according to Figure 1;

Figure 3 shows a bottom view of the indicating sign according to Figures 1 and 2;

Figure 4 shows a bottom view of a further embodiment of an indicating sign for motor vehicles according to the invention;

Figure 5 shows a side view of the indicating sign according to Figure 4 in the operative position on the roof of a motor vehicle, which is partly cut away; and

Figure 6 shows a sectional view of a part of the indicating sign according to Figures 4 and 5, along the sectional plane A-A.

The indicating sign for attachment on the roof of a motor vehicle, as illustrated in Figures 1 to 6, is in the form of a closed box which may be provided with indicating symbols and/or indicating inscriptions such as, for instance, "Taxi", "Police" or the like. According to the invention, the box 1 has the shape of a pyramid. This relatively simple shape which is advantageous in terms of aerodynamics and, thus, fuel-saving, at the same time has the effect that the information provided thereon is visible from all sides. An indicating inscription 4 is provided on each of the obliquely upwardly extending side faces 2 of the box 1 facing with its base area 3 the vehicle roof D in its operative position. Within the outlines of said inscriptions, the side faces 2 are translucent, and in the interior of the box there is at least one light source, so that the visibility of the indication is ensured also in the dark.

The pyramid-shaped box 1 has, in a particularly advantageous manner, an asymmetrical configuration with a markedly wedge-like profile as seen transversely of the driving direction F of the vehicle. The edge 6 of the box 1, which in the operative position is oriented in driving direction F and extends obliquely upwardly to the pyramid

vertex 5, is longer than the two other box edges 7, 8 which also meet in the pyramid vertex 5.

The base area of the pyramid-shaped box 1 need not necessarily have the form of a triangle. An advantageous configuration of the box 1 as regards the aerodynamics as well as the visibility of the information provided thereon from all sides is also ensured, for instance, with a pyramid having a quadrangular base area, in particular when the edges facing in driving direction are longer than the two other edges.

Mounting of the box 1 on the vehicle roof D can be effected in an especially expedient manner magnetically, with a gap s being left between the base area 3 of the box and the surface of the roof. Figures 1 and 3 illustrate a passible embodiment of the mounting means 9. The mounting means 9 is provided in the form of a carrier 10 having, in plan view, a double-T-configuration. It advantageously comprises a connecting beam 11 which is designed as a torsion bar and which is mounted on the side of the base area 3 of the box 1 facing the vehicle roof D. It is advisable to provide one permanent magnet 12 each on all four ends of the double-T-carrier 10.

A further embodiment of the mounting means 9 is illustrated in Figures 4 to 6.

In this embodiment, mounting takes place by means of three permanent magnets 112 only, which are disposed on two rails 113,114 in linearly slidable manner. The rails, in turn, are mounted on the triangular, planar base area 3 of the box 1, which faces the vehicle roof D, in such a manner that one rail, namely the shorter rail 113, extends in driving direction F of the vehicle to a location near the corner of the base area 3 facing in the same direction. The shorter rail 113 holds one permanent magnet 112. The other, longer rail 114 extends at right angles to the shorter rail 113 and at the same time parallel to the, as seen in driving

direction F, rear side edge of the base area 3 between the two laterally directed corners of the latter and carries two permanent magnets 112.

This arrangement of the rails 113,114 is advantageous, but other arrangement possibilities are conceivable as well.

The length of the rails 113,114 must be dimensioned such that mounting of the indicating sign in a manner so that the base area of the pyramid-shaped box 1 always assumes a substantially horizontal position, is also possible on vehicles having a so-called sunshine roof or having a roof provided with ribs R. Permanent magnets 112 of circular-cylindrical configuration are particularly advantageous for mounting the box 1 on a vehicle roof D.

The following measures are indicated as an exemplary embodiment:

length of shorter rail 113:	L_1	= 350 mm
length of longer rail 114:	L_2	= 650 mm
diameter of permanent magents 112:	d	= 100 mm
adjustement range for magnet 112 on rail 113:	b	= 250 mm
adjustment range for magnets 112 on rail 114 in total:	b	= 450 mm

It is of course also possible to arrange not two permanent magnets 112 in common on one rail, but to provide a separate rail for each one of the permanent magnets, with each rail being mounted on the bottom side of the base area 3 of the box 1 facing the vehicle roof D, in such a manner that the base area 3, upon mounting of the box 1 on a vehicle roof D, is adapted to assume a substantially horizontal position by suitably moving the permanent magnets 112 on the rails.

An optimum attachment of the box 1 on a vehicle roof F which is not planar throughout, possibly may already be ensured when only one of the permanent magnets 112 is slidably arranged on a rail and the other permanent magnets are attached to the base area 3 of the box 1 in stationary manner.

It is advisable, furthermore, to attach the permanent magnets 112 on the base area 3 of the box 1 in such a manner that they are spatially movable at least in a restricted manner. This may be effected for each magnet by way of a resilient member, for instance a cylindrical member 115 of rubber which has a restricted diameter in its middle portion. Anchoring of each permanent magnet 112 is effected by means of a bolt 117 extending through the central bore of the member 115, with the associated nut 116 being received in the associated rail 113 or 114 of C-shaped profile. The member 115 is molded onto the permanent magnet 112. The described arrangement is illustrated in Figure 6 by way of example with regard to the mounting of one of the two rear permanent magnets 112 as seen in driving direction, Figure 6 showing a side view of said arrangement in an action along the sectional plane A-A according to Figure 5.

However, coupling of the permanent magnets 112 with the aid of ball-and-socket joints would be conceivable as well.

In the manner described hereinbefore, it is possible to achieve an optimum adaptation of the permanent magnets 112 to an arbitrary vehicle roof, and thus the permanent magnets are capable of developing their maximum holding force.

The length of the edges 6, 7 and 8 extending from the base area 3 of the box 1 in the direction towards the pyramid vertex 5 may also be dimensioned such that they do not have a common point of intersection, but such that their end points which do not constitute the corner points of the

base area 3 constitute the corner points of an area that is substantially parallel thereto. The box 1 thus has in this case the shape of a "cut-off" pyramid.

As a development of this embodiment, mutually parallel edges 6, 7 and 8 may be provided as well.

By doing so, a prism-like body results whose parallel three longitudinal edges advantageously are dimensioned shorter than the side edges of its two triangular faces, and which should have one of its triangular faces facing the vehicle roof D and one of its longitudinal edges oriented in driving direction F. A further possibility is a prism-like body with rhombic horizontal section.

A further embodiment consists in that rail 114 (Figure 4) is split into two rails and that the three rails thus provided extend substantially from the centre of the bottom side of box 1 radially in the direction towards the three corners of the bottom side. The permanent magnets 112 may all be disposed in slidable manner on the respective rail.

I claim:

1. An indicating sign for attachment on the roof of a motor vehicle, consisting of a closed box with indicating symbols and/or indicating inscriptions such as "Taxi", "Police" or the like, characterized in that the box has the shape of a pyramid.

2. An indicating sign according to claim 1, characterized in that one indicating symbol and/or indicating description each is provided on each of the three obliquely upwardly extending side faces of the pyramid-shaped box facing in the operative position the vehicle roof with its base area.

3. An indicating sign according to claim 1 or 2, characterized in that the obliquely upwardly extending side faces are translucent within the outlines of the symbols and/or indicating inscriptions provided thereon, and in that at least one light source is disposed in the interior of the box.

4. An indicating sign according to any one of claims 1 to 3, characterized by an asymmetrical design of the pyramid-shaped box with, as seen transversely of the driving direction, markedly wedge-like profile in that the edge (6) thereof, which in the operative position is oriented in driving direction and extends obliquely upwardly to the pyramid vertex, is longer than the two other edges thereof which also meet in the pyramid vertex.

5. An indicating sign according to any one of claims 1 to 4, characterized in that the box is magnetically

mounted on the vehicle roof, with a gap being left between the base area of the former and the surface of the latter.

6. An indicating sign according to claim 5, characterized by four permanent magnets each arranged on one of the four ends of a double-T-carrier provided on the side of the base area of the box facing the vehicle roof.

7. An indicating sign according to claim 6, characterized in that the connecting beam of the double-T-carrier is designed as a torsion bar.

8. An indicating sign according to claim 5, characterized by three permanent magnets, at least one thereof being arranged on a rail in linearly slidable manner, and at least one rail being provided on the side of the base area of the box facing the vehicle roof.

9. An indicating sign according to claim 8, characterized in that one of the permanent magnets is arranged on a shorter rail and the two other permanent magnets are arranged on a common, longer rail, the shorter rail being disposed substantially parallel to the driving direction of the vehicle and extending from a point near the corner of the base area oriented in driving direction, towards the side edge of the base area located opposite said corner, and the longer rail being disposed substantially at right angles to said rail and parallel to the side edge of the base area facing away from the driving direction.

10. An indicating sign according to claim 8, characterized in that the three permanent magnets are disposed on one rail each, the three rails extending substantially from the center of the box in radially outward direction.

11. An indicating sign according to any one of claims 5 to 10, characterized in that the permanent magnets are mounted on the box in spatially movable manner.

12. An indicating sign according to claim 11, characterized in that resilient members are provided for said mounting in spatially movable manner.

13. An indicating sign according to claim 11 or 12, characterized in that the permanent magnets are each mounted by means of a bolt extending through the central bore of a cylindrical member having in its middle portion a reduced diameter, with the respectively associated nut being received in the associated rail of C-shaped profile.

14. An indicating sign according to claim 11, characterized in that the permanent magnets are mounted on the base area of the box by means of ball-and-socket joints.

FIG. 4

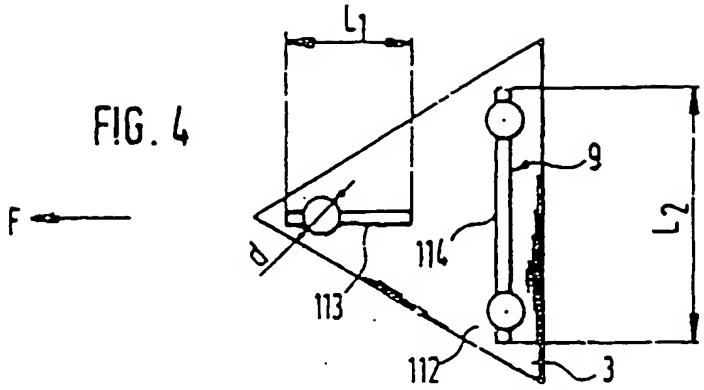
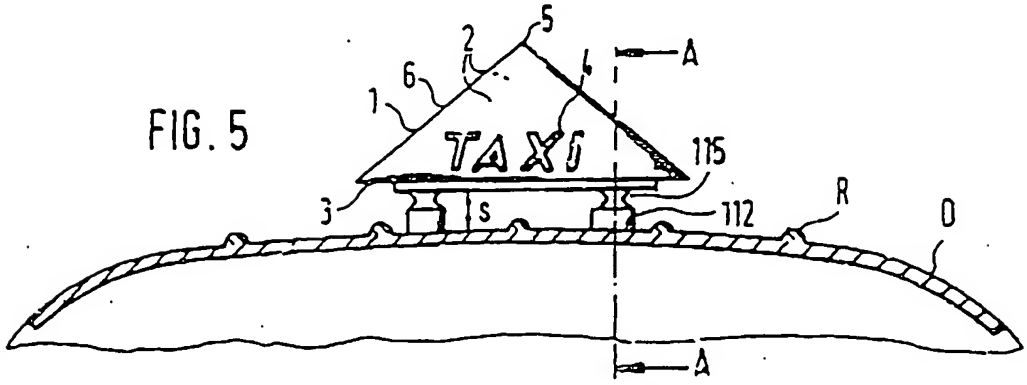


FIG. 5



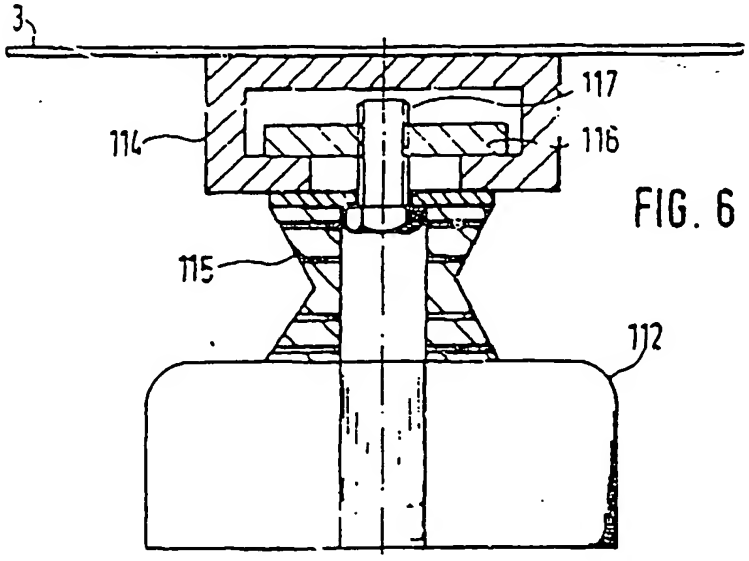


FIG. 6

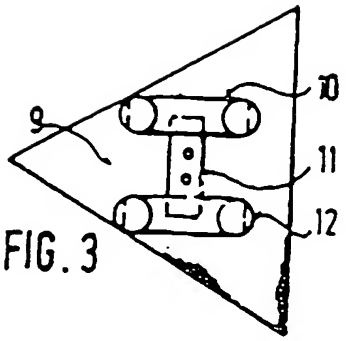


FIG. 3

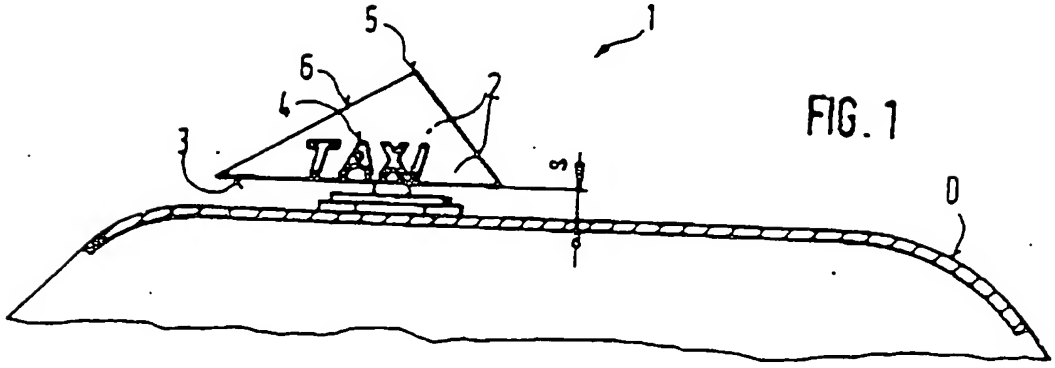


FIG. 1

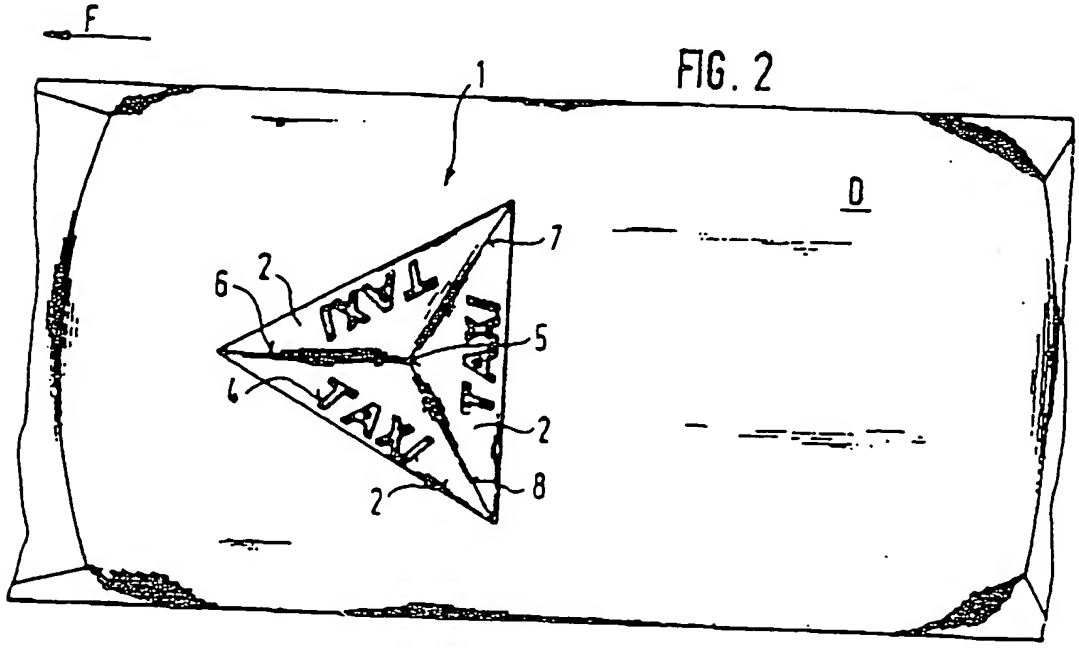


FIG. 2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

For: **VEHICLE ADVERTISING SIGN, SYSTEM AND METHOD**

Mr. Brian Green
Examiner
Art Unit 3611

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

AFFIDAVIT OF WILLIAM A. ELMER UNDER 37 C.F.R. §1.132

State of Florida :
:
County of Orange :

William A. Elmer, having first having first appeared before the undersigned officer who is duly authorized to administer oaths in the State of Florida did depose and say:

1. I am the applicant in the above-identified reissue application, and make this affidavit based upon my personal knowledge.

2. Prior to the sign development which is the subject of this application, I developed the signage which is the subject of those patents referenced in paragraphs 3-5 below.

3. U.S. Patents 4,667,428 and D290,620 are directed to a triangular, suction cup-mounted roof-top sign which was sold under license by HTH, Inc. and was referred to as the "Roof-Top Stacker," because of the ability of the sign to be nested one on top of another. Copies of these patents are appended as Attachments A and B.

4. U.S. Patents 5,084,994 and 5,339,551, Attachments C and D, are directed to a window-mounted sign design using suction cups and a bracket, and which was sold by HTH under the trademark "Window Wing".

5. U.S. Patent D327,333, Attachment E, is directed to a sign body which was sold by HTH under the trademark "Window Bullet".

6. In the course of my investigation into the use of magnets for roof-top signs, I fitted magnets to the commercial versions of HTH's "Roof-Top Stacker," "Window Wing" and "Window Bullet" sign bodies.

7. In experiments with the "Roof-Top Stacker" design (i.e., made according to the design shown in Figures 1-3 of the '428 patent, Attachment A), I replaced the suction cups at the three corners of the sign with magnets. However, I found that this arrangement was not stable at higher vehicular speeds, and that at least two additional intermediate magnets were required to achieve the required stability.

8. As to the "Window Wing" sign body (i.e., made according to the design shown in Figures 5A-5C of the '994 patent, Attachment C), I fitted magnets at the front and rear ends of the sign body, and even experimented with the use of additional

magnets fitted at intermediate outriggers extending outwardly from the sides of the sign with magnets attached to the outriggers. In each case, the sign proved to be unstable at higher vehicle speeds.

9. In the case of the "Window Bullet" sign (i.e., made according to the design shown in the '333 patent, Attachment E), I experimented by using one magnet fitted at the front end and two magnets at the rear; I found that this sign body was still unstable at higher vehicle speeds and therefore unsatisfactory.

10. In the evaluations I did leading to the design shown in the '100 patent, I learned of the importance of recessing the magnets as much as possible below the adjacent sides, to improve the stability of the sign when fitted to a vehicle operating at higher speeds; this was achieved in part by recessing the base above the level of adjacent sides about the magnets. I also learned that four spaced magnets on a unitary rectangular base provided significant stability at essentially all vehicle speeds that would be encountered during a pizza delivery use. I found that the use of a magnet having a pivotal capability by using a bevel-headed fastener extending through the magnet and a flexible sleeve into the recessed base permitted the sign to fit well to any vehicle roof-top curvature, while maintaining the recessed configuration described above. I also learned through experimentation that a completely enclosed sign body further achieved the desired stability. I also found that a magnet assembly with the magnet fitted in a non-magnetic metal cup having a slight protrusion and a plastic coating facilitated decoupling of the sign when being removed from a vehicle.

11. I have recently reviewed Canadian Patent 2,041,396 which I understand is a corollary to the EP '194 reference relied upon in the January 12, 2003 Office

Action. In order to evaluate the construction disclosed in the EP '194 reference and the related '396 Canadian patent, I fabricated a rail, cylinder and magnet unit like that shown in Figure 6 of these references. Photographs of this rail-cylinder-magnet unit that I fabricated are appended at Attachments F-J.

12. After fabricating the unit shown in the photographs of Attachments F-J, I found that the bottom magnets of this unit do not easily pivot about the centerline of the magnet.

FURTHER AFFIANT SAYETH NAUGHT.

William A. Elmer

Subscribed and sworn to before me
this 8th day of July, 2003.

Notary Public
My commission expires:

Personally known to me ✓
Produced identification of:

Herbert L. Allen
MY COMMISSION EXPIRES
April 11, 2005
#DD009036
Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

United States Patent [19]

Elmer

[11] **Patent Number: 4,667,428**

[45] **Date of Patent: May 26, 1987**

[54] **TRIANGULAR CAR TOP SIGN**

[76] Inventor: William A. Elmer, 917 N. Pennsylvania Ave., Winter Park, Fla. 32789

[21] Appl. No.: 728,100

[22] Filed: Apr. 29, 1985

[51] Int. Cl.[4] G09F 21/04

[52] U.S. Cl. 40/592; 40/597

[58] Field of Search 40/592, 591, 605, 612, 40/597, 541, 616; D20/10

[56] References Cited

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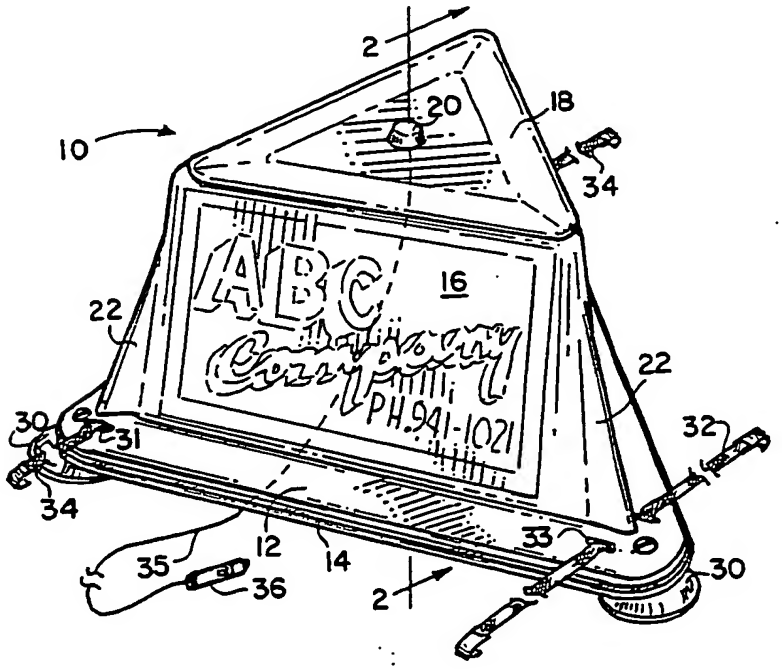
3,440,748	4/1969	Hackley	40/592
3,905,324	9/1975	English	40/612
3,916,816	11/1975	Fitch	40/612
4,052,806	10/1977	George	40/592
4,292,627	9/1981	Knight	40/612

Primary Examiner—Robert Peshock
Assistant Examiner—J. Hakomaki
Attorney, Agent, or Firm—MacDonald J. Wiggins

[57] ABSTRACT

An advertising sign holder for attachment to a vehicle roof is molded from a translucent plastic sheet. A triangular base flange has a hollow truncated pyramid with a triangular base integral therewith. The pyramid includes an integral top. Suction cups are attached to the corners of the base flange for the dual function of attaching the sign to a vehicle roof and maintaining separation of a plurality of signs nested together for storage. An electric light disposed within the pyramid portion provides illumination of the sign holder.

7 Claims, 6 Drawing Figures



United States Patent [19]

Elmer

[11] Patent Number: Des. 290,620

[45] Date of Patent: ** Jun. 30, 1987

[54] VEHICLE TOP SIGN HOLDER

[76] Inventor: William A. Elmer, 917 N. Pennsylvania Ave., Winter Park, Fla. 32789

[**] Term: 14 Years

[21] Appl. No.: 728,522

[22] Filed: Apr. 29, 1985

[52] U.S. Cl. D20/10

[58] Field of Search ..... D20/10; D10/109, 113; 40/591, 592, 593; 116/28 R

[56] References Cited

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3,828,456	8/1974	Rose	40/592
4,052,806	10/1977	George	40/592 X

Primary Examiner—Catherine E. Kemper

Attorney, Agent, or Firm—Macdonald J. Wiggins

[57] CLAIM

The ornamental design for a vehicle top sign holder, as shown and described.

DESCRIPTION

FIG. 1 is a front, left, top perspective view of the vehicle top sign holder showing my new design;

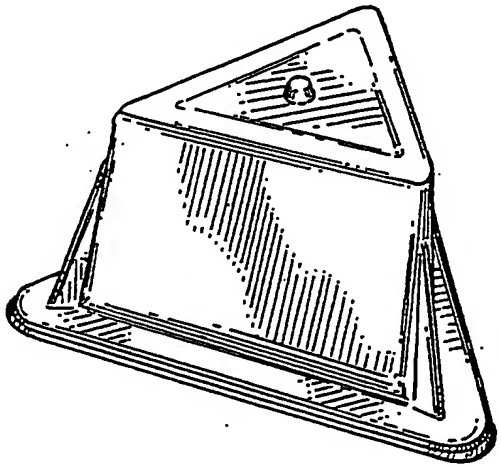
FIG. 2 is a top plan view thereof;

FIG. 3 is a bottom plan view thereof;

FIG. 4 is a front elevation thereof;

FIG. 5 is a rear elevation thereof; and

FIG. 6 is a right side elevation thereof with the left side elevation being a mirror image thereof.



US005084994A

United States Patent [19]

Elmer

[11] Patent Number: 5,084,994

[45] Date of Patent: Feb. 4, 1992

[54] ADJUSTABLE VEHICLE-MOUNTED ADVERTISING SIGNS AND METHOD

[76] Inventor: William A. Elmer, 1010 Temple Grove Ct., Winter Park, Fla. 32789

[21] Appl. No.: 546,714

[22] Filed: Jul. 2, 1990

[51] Int. Cl.[5] G09F 21/04

[52] U.S. Cl. 40/591; 40/602; 40/597

[58] Field of Search ..... 40/591, 592, 593, 610, 40/602, 412, 413, 597; 211/88; 87; 224/42.46 R, 42.45 R, 42.42

[56] References Cited

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4,231,501	11/1980	Goode	224/42.46 R
4,667,428	5/1987	Elmer	40/597 X
4,976,410	12/1990	Tomainolo	40/591 X

FOREIGN PATENT DOCUMENTS

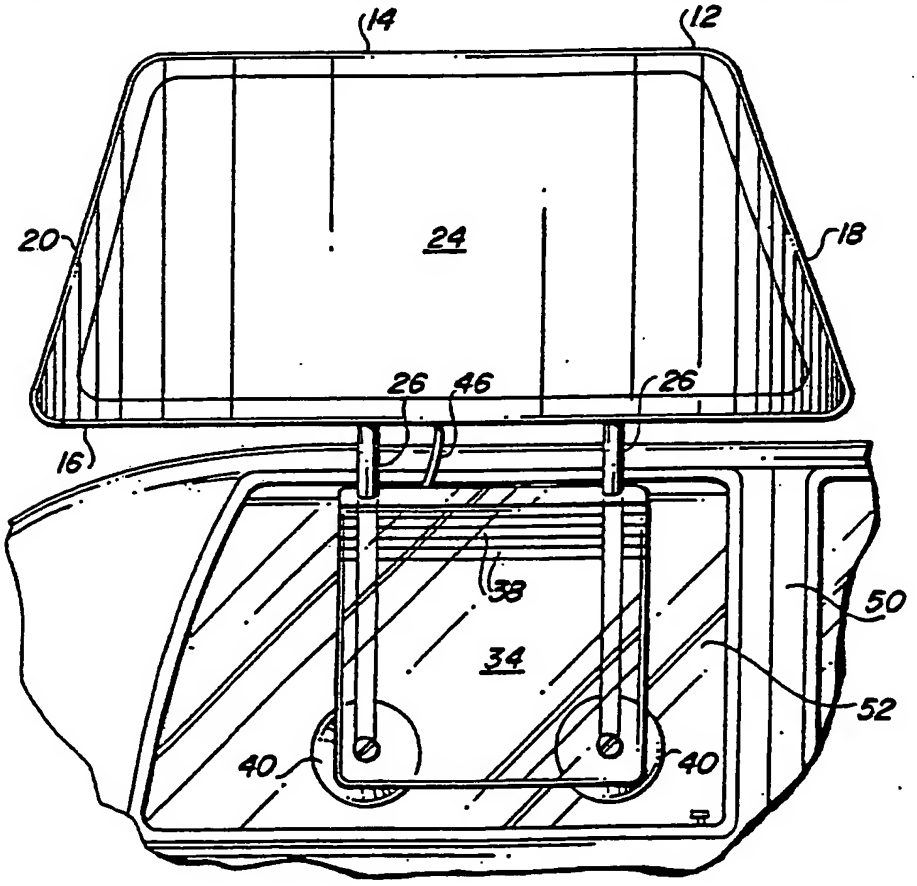
2124008	2/1984	United Kingdom	40/591

Primary Examiner—Kenneth J. Dorner
Assistant Examiner—J. Bonifanti
Attorney, Agent, or Firm—Duckworth, Allen, Dyer & Doppelt

[57] ABSTRACT

An advertising display for use above the roof of a vehicle comprises a rigid aerodynamic member, which tapers rearwardly to a trailing edge with an upstanding brace extending into the aerodynamic member and with a window mount fixed to the brace and having a lateral hook portion dimensioned to pass across the top of one of the vehicle's windows. At least one surface of the aerodynamic member defines an area to which an advertising medium can be affixed.

17 Claims, 4 Drawing Sheets



US005339551A

United States Patent [19]

Elmer

[11] Patent Number: 5,339,551

[45] Date of Patent: * Aug. 23, 1994

[54] **REMOVABLE VEHICLE MOUNTED ADVERTISING SIGNS AND METHOD**

[76] Inventor: William A. Elmer, 1010 Temple Grove Ct., Winter Park, Fla. 32789

[*] Notice: The portion of the term of this patent subsequent to Feb. 4, 2009 has been disclaimed.

[21] Appl. No.: 62,594

[22] Filed: May 17, 1993

Related U.S. Application Data

[60] Division of Ser. No. 830,563, Jan. 31, 1992, Pat. No. 5,210,970, which is a continuation-in-part of Ser. No. 546,714, Jul. 2, 1990, Pat. No. 5,084,994.

[51] Int. Cl.[5] G09F 21/04

[52] U.S. Cl. 40/591; 40/597; 40/602

[58] Field of Search 40/591, 592, 593, 597, 40/602, 606, 610, 412, 413; 211/87, 88; 224/42.42, 42.45, 42.46

[56] References Cited

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3,715,821	2/1973	Hawes	40/591
3,779,436	12/1973	Burland .	
3,828,455	8/1974	Bentley	40/602
4,231,501	11/1980	Goode	224/42.46 X
4,667,428	5/1987	Elmer	40/597 X
4,976,410	12/1990	Tomaiuolo	40/591 X
5,084,994	2/1992	Elmer	40/591

FOREIGN PATENT DOCUMENTS

2124008	2/1984	United Kingdom	40/591

OTHER PUBLICATIONS

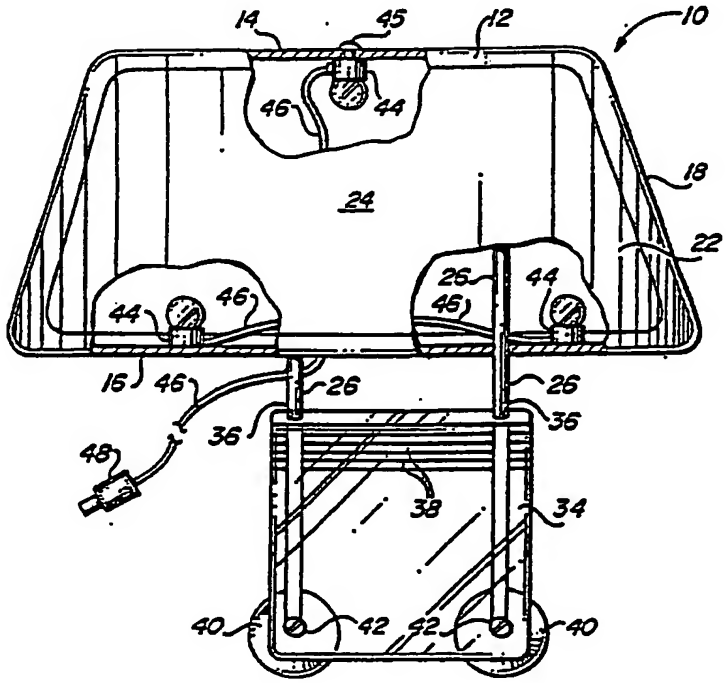
Advertisement for "Windword" car-topper sign—Pizza Today Magazine, May 1989.

Primary Examiner—Kenneth J. Dorner
Assistant Examiner—Joanne Silbermann

[57] ABSTRACT

A rigid aerodynamic advertising member is removably mounted to either the tailgate or vertical side of the bed of a pick-up truck with a mounting bracket coupled to rigid braces attached to the advertising member, with the dimension between the braces being sufficient to insure rigidity while the truck is underway.

10 Claims, 6 Drawing Sheets



USD327333S

United States Patent [19]

Elmer

[11] Patent Number: Des. 327,333

[45] Date of Patent: ** Jun. 23, 1992

[54] ADVERTISING SIGN HOLDER FOR AUTOMOBILES

[76] Inventor: William A. Elmer, 1010 Temple Grove Ct., Winter Park, Fla. 32789

[**] Term: 14 Years

[21] Appl. No.: 564,972

[22] Filed: Aug. 9, 1990

[52] U.S. Cl. D26/31; D20/10

[58] Field of Search D20/10, 15, 39, 40; D19/34.1, 34.2, 34.3, 96; D26/31; 40/584, 591, 592, 593, 617, 618, 624

[56] References Cited

U.S. PATENT DOCUMENTS

D. 207,240 3/1967 Stevens et al. D26/31
D. 246,937 1/1978 Smith D20/10
D. 256,419 8/1980 Hom D20/10

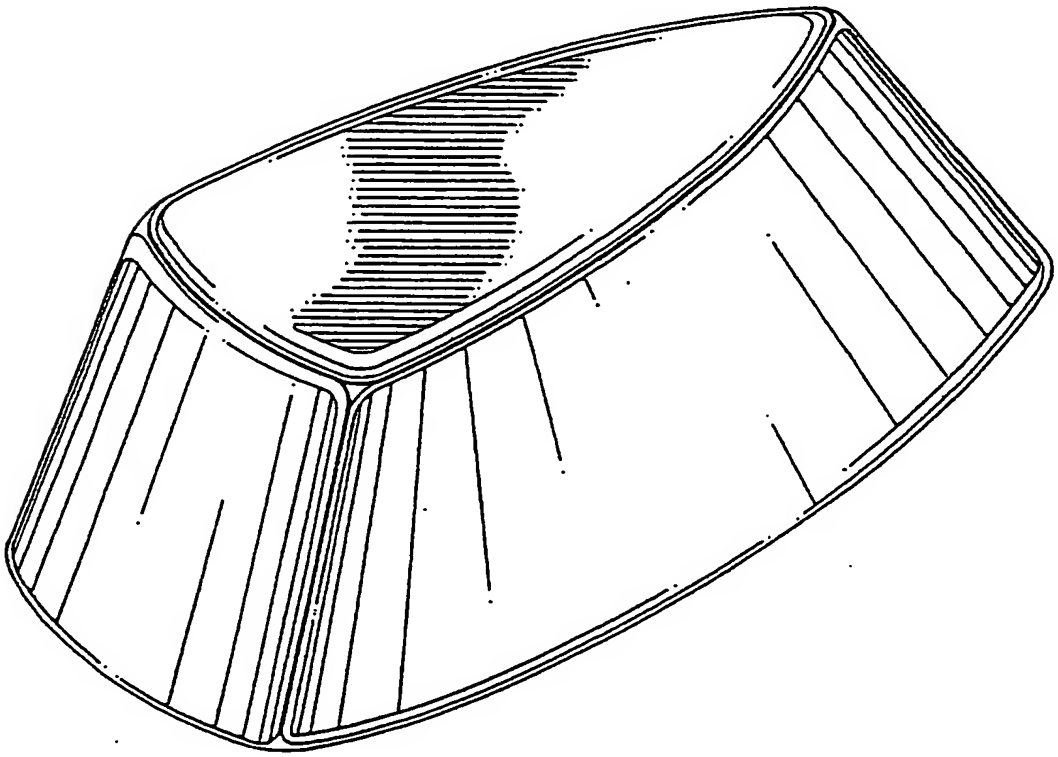
Primary Examiner—Wallace R. Burke
Assistant Examiner—Marcus Jackson
Attorney, Agent, or Firm—Allen, Dyer, Doppelt, Franjola & Milbrath

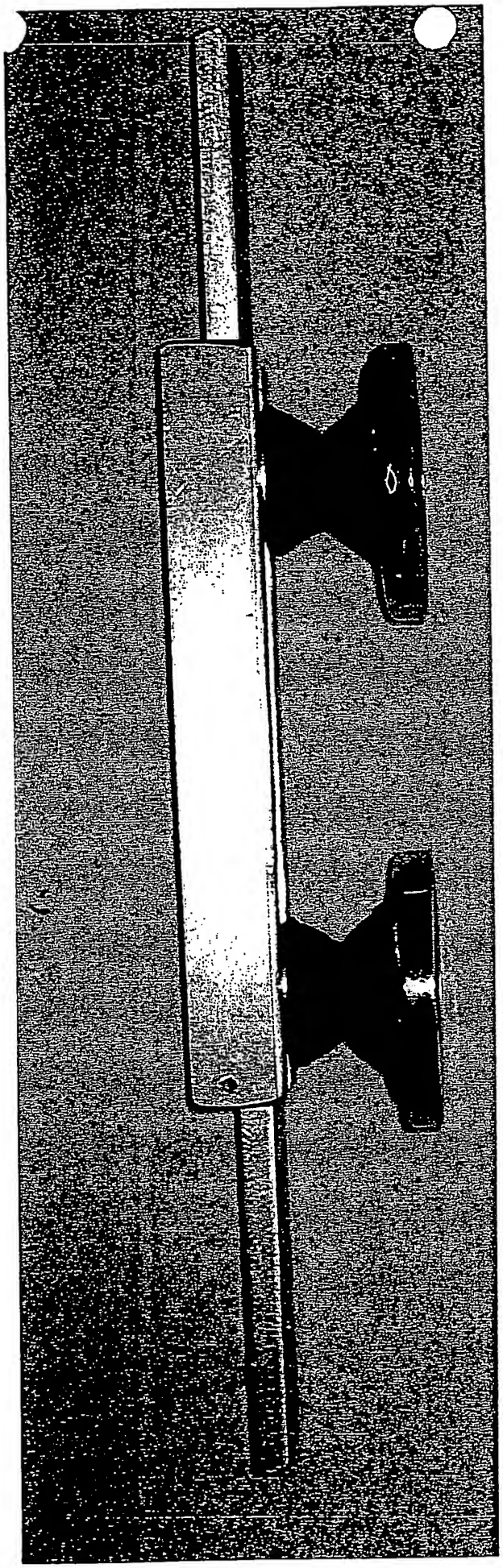
[57] CLAIM

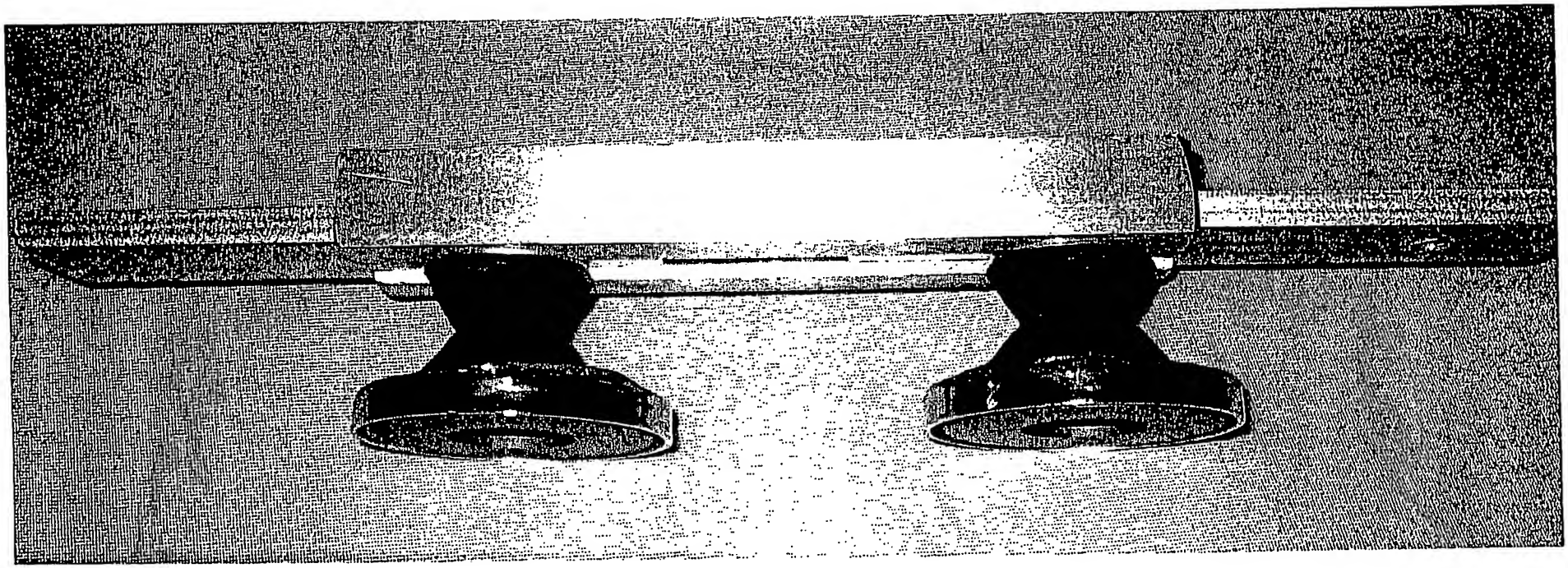
The ornamental design for an advertising sign holder for automobiles, as shown.

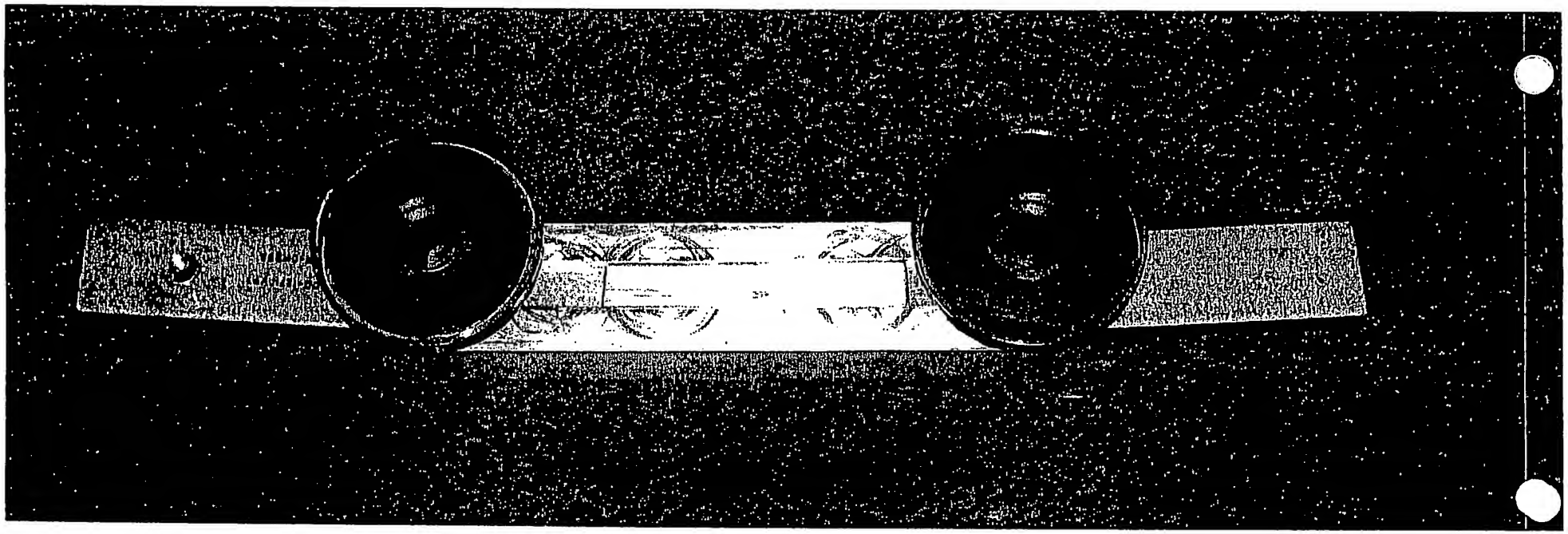
DESCRIPTION

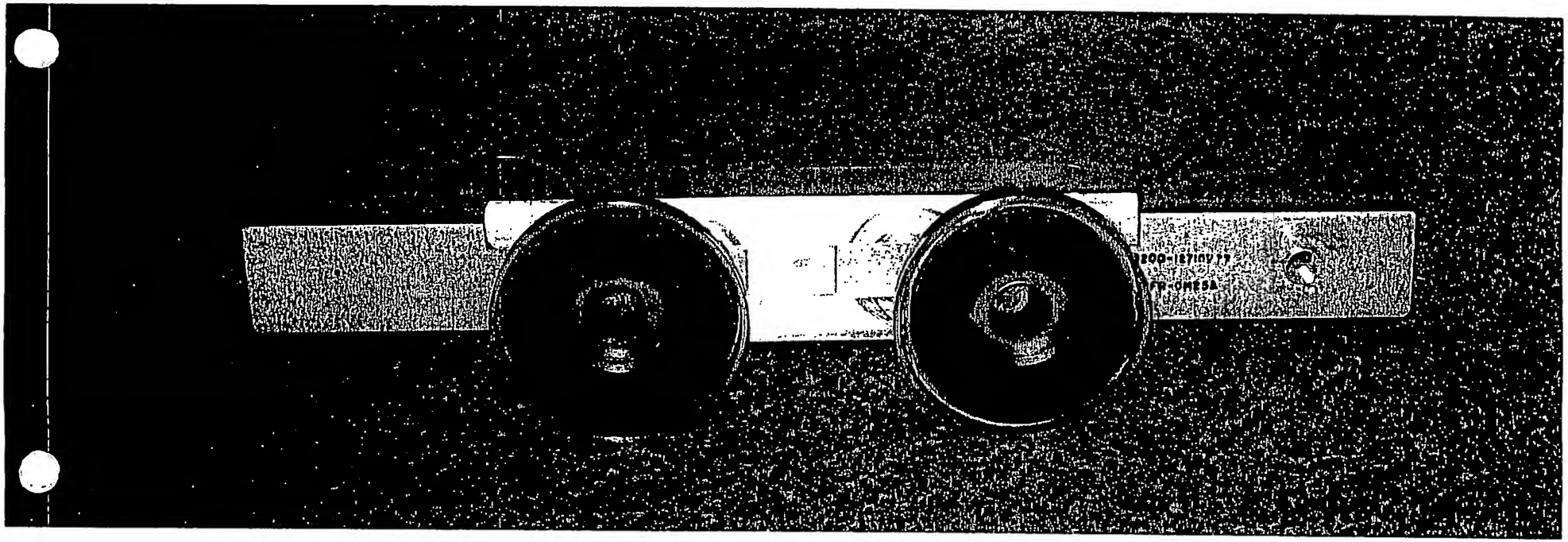
FIG. 1 is a perspective view of an advertising sign holder for automobiles showing my new design;
FIG. 2 is a top plan view thereof;
FIG. 3 is a bottom plan view thereof;
FIG. 4 is a side elevational thereof;
FIG. 5 is a front elevational thereof; and,
FIG. 6 is a rear elevational thereof.

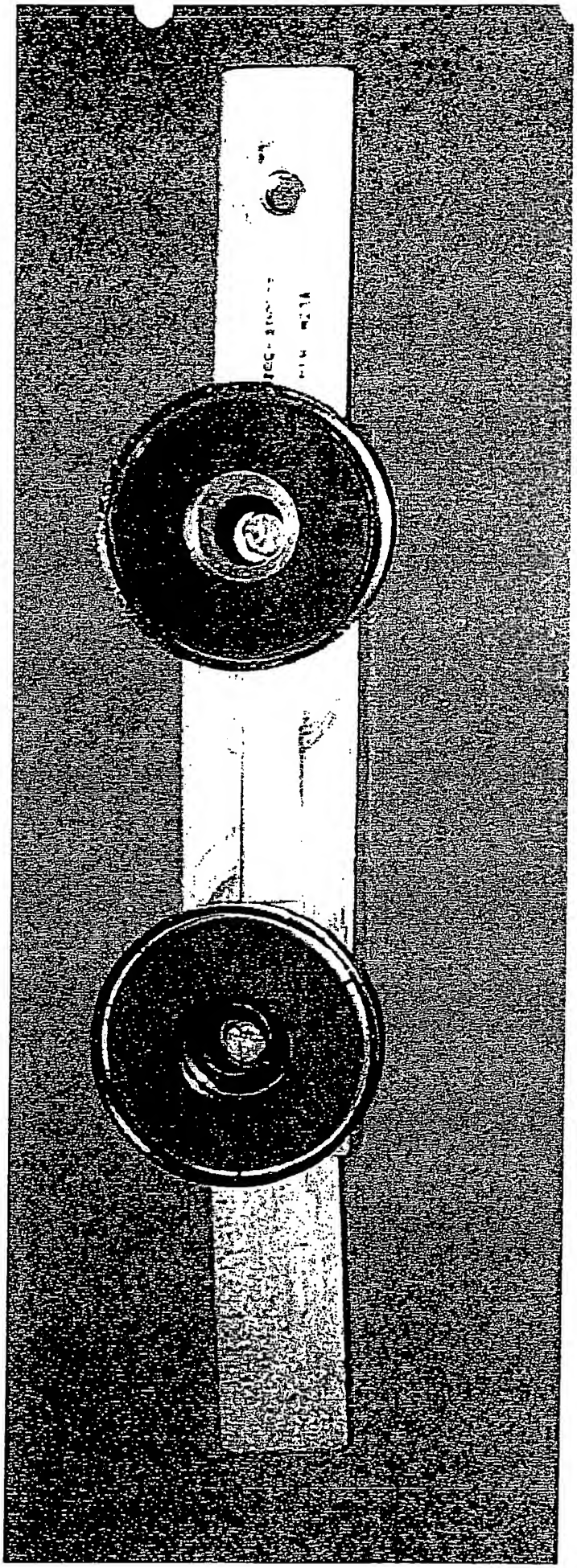












IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

For: **VEHICLE ADVERTISING SIGN, SYSTEM AND METHOD**

Mr. Brian Green
Examiner
Art Unit 3611

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

AFFIDAVIT OF JULIAN C. RENFRO
UNDER 37 C.F.R. §1.132 ON OBVIOUSNESS ISSUES

State of Florida :
:
County of Orange :

Julian C. Renfro, having first appeared before the undersigned officer who is duly authorized to administer oaths in the State of Florida, did depose and say:

1. I am a registered patent attorney. My registration number is 17,742. Prior to entering private practice in Winter Park, Florida, I was patent counsel for the Martin Marietta Corporation (now Lockheed Martin) at its Orlando facilities; upon completing more than 26 years of service with that company, I retired in 1982. A copy of my curricula vita is appended as Attachment A.

2. I have been asked to evaluate the grounds of rejection under 35 U.S.C. §103 set out in the Examiner's Office Action of June 12, 2003. Because of my 49 years as a patent attorney with substantial experience in prosecuting mechanical-type patent applications (I estimate that I have prosecuted nearly one thousand mechanical applications in my career), I am qualified to give an opinion as to the obviousness rejections applied in the June 12, 2003 Office Action and to point out specific factual issues regarding the claim language which does not appear to have been addressed in that Office Action.

3. In connection with my analysis on the obviousness issues in the Office Action, I reviewed the following documents:

a. the specification and claims in U.S. Patent 5,711,100;

b. the June 12, 2003 Office Action;

c. European Patent 415,194 (in German) and its corollary, Canadian Patent 2,041,396 (in English);

d. U.S. Patent 4,052,806 to George;

e. U.S. Patent 3,245,165 to Podoloff;

f. U.S. Patent 2,960,786 to Wagner;

g. the July 8, 2003 affidavit of Mrs. Sharon Elmer, the wife of the inventor;

h. The July 8, 2003 affidavit of the inventor, Mr. William A. Elmer;

i. a specimen of a sign made by HTH, Inc. under a license from the '100 patent, including the associated magnet assemblies; and

j. a reproduction of the magnet-cylindrical member assembly in EP 415,194 (drawing elements **115** and **112**, respectively), which is depicted in Attachments F-J in Mr. Elmer's affidavit.

4. In my analysis of the obviousness rejection set out below, I have attempted to follow the rejections in the same order set out in the June 12 Office Action.

I. Rejection of Claims 2 and 3 on EP '194 and George '806

5. In this rejection at the bottom of page 5 of the Office Action, the Examiner takes the position that EP '194 discloses -

> means (**115, 116, 117**) for pivotally attaching each magnet to the base wherein the pivotal means includes a flexible sleeve (**115**).

6. With due respect, element **115** in the EP '194 reference is not a "flexible sleeve". Indeed, the word "sleeve" does not appear at all in the English translation of EP '194 found in the '396 Canadian patent. Instead, the relevant portion of the '396 Canadian patent (which presumably represents a viable translation of EP '194) describes the "member **115**" in the following terms:

> It is advisable, furthermore, to attach the permanent magnets 112 on the base area 3 of the box 1 in such a manner that they are a ***spatially movable at least in a restricted manner***. This may be effected for each magnet by way of a resilient member, ***for instance a cylindrical member 115 of rubber which has a restricted diameter in its middle portion***. Anchoring of each permanent magnet 112 is effected by means of a bolt 117 extending through the central bore of the member 115, with the associated nut 116 being received in the associated rail 113 or 114 of C-shaped profile. ***The member 115 is***

molded onto the permanent magnet 112. (Emphasis supplied).

7. Webster's Third New International Dictionary, Unabridged, Copyright 1993 contains several definitions of the word "sleeve" (appended at Attachment B). All of these definitions describe a sleeve as an element which fits about another object. The resilient member **115** of the EP '194 reference does not fit about anything, but instead has a central bore through which the bolt **117** is inserted for joinder to the rail **114**.

8. In contrast, the '100 patent discloses a flexible sleeve **130** which fits about the threaded shaft of the bolt **128**. This represents an important distinction with regard to the combination of the resilient member **115** and bolt **117** in the EP '194 reference; this is true, because the flexible sleeve **130** in the '100 patent is compressed by tightening of the bolt **128**, as is specifically shown by dotted lines in Figure 1A in the drawing of the '100 patent. On the other hand, the resilient member **115** of the EP '194 reference is <u>not</u> capable of being placed under compression by the tightening of the bolt **117**, for the head of the bolt **117** rests directly against the unnumbered washer which abuts the rail **114** in Figure 6 of the '396 Canadian patent. The resilient member **115** is simply not a sleeve.

9. Dependent Claim 3 specifically recites that the fastener extends through the magnet, its flexible sleeve and into the base. This language further enhances the distinction between EP '194 and the teachings in the '100 patent, as discussed above.

10. There is a further reason why the EP '194 reference is deficient with respect to Applicant's Claims 2 and 3. Specifically, it is noted that the language quoted above from page 6 of the Canadian '396 reference does not refer to the attachment

mechanism for the member **115** being such as to permit the magnet to conform to the shape of the vehicle roof. Rather, the above-quoted language refers to the permanent magnets being attached "in such a manner that they are spatially movable at least in a restricted manner" (emphasis added). The definition of the word "spatial" from Webster's Unabridged Third New International Dictionary is set out at Attachment C. None of the definitions of this word remotely suggests that, as used in EP '194 (and its Canadian corollary), a "rocking" movement is achieved to conform to the top of a roof panel. Rather, Figure 5 of EP '194 suggests that the spatial movement contemplated by this statement is a lateral movement--a movement either to the right or to the left so as to avoid ridges or other obstructions that may be present on the surface of the roof. This lateral movement in no way comprehends the language "pivotally attaching each magnet..." as set forth in Claim 2.

11. I have also reviewed the George '806 patent, but find that the system of permanently attaching the sign to the roof top of the automobile as depicted in the cross section of Figure 3 bears no relationship to Applicant's invention, and does not avoid the deficiencies of the EP '194 reference as discussed above.

II. Rejection of Claims 1, 4-11 and 13-17 Under 35 U.S.C. §103 on EP '194, George '806, Podoloff '165 and Wagner '786

A. Claim 1

12. I have carefully reviewed each of the EP '194, George, Podoloff and Wagner references, and believe there is no suggestion for combining these references.

However, even if there were a suggestion for combining these references, it would not result in the combination recited in Claim 1, as discussed below.

13. The EP '194 reference is relied upon for "the idea of fixing the magnets to the base without the use of rails," referring to column 4, lines 25-40 of that reference. While I do not have access to an English translation of EP '194, I am able to determine the location of the referenced material as being underneath the measurements set out at lines 17-24 on page 5 of the Canadian reference (a copy of which is appended at Attachment D). I have carefully examined the two paragraphs underneath the chart of measurements, and find that this statement in the June 12 Office Action appears to be directed to the following language appearing in the paragraph at the top of page 6 of the Canadian '396 reference:

> An optimum attachment of the box 1 on a vehicle roof R which is not planar throughout, possibly may already be ensured when only one of the permanent magnets 112 is slidably arranged on a rail and the other permanent magnets are attached to the base area 3 of the box 1 in stationary manner.

14. With due respect, I do not find that the suggestion of attaching permanent magnets directly to the base would result in a construction which would achieve the following element recited in Claim 1 of the '100 patent to Elmer:

> means for pivotally attaching each magnet to the base so that each magnet can pivot and adjust to differences in slope along a vehicle metal panel to which the advertising sign may be attached.

15. Indeed, the above-quoted portion of the Canadian '396 patent--which is presumed to correspond to EP '194--suggests that the magnet **112** is attached directly to the base, without the intervening member **115**. Such an arrangement clearly would

not achieve the above-quoted element of Claim 1, in which claim the pivotal attachment is emphasized.

16. To the extent that the June 12 Office Action relies upon the above-quoted statement from column 4, lines 25-40 of EP '194 to suggest that the cylindrical member **115** can be attached directly to the sign box (element **1** in EP '194), a careful review of the text of the Canadian corollary and the associated drawings are entirely devoid of any teaching as to how that would be achieved. In contrast, the '100 patent discloses a construction of the base **107** to include a molded extension **113** into which the fastener **128** extends. Such an arrangement is not at all suggested by the teachings of EP '194. Furthermore, a review of the secondary references show that such an arrangement could not be adapted for the sign construction in EP '194 without significant modification. Thus, while Podoloff discloses a separate nut **100** into which the fastener **96** extends, there is no suggestion in either EP '194 or Podoloff which would lead one of ordinary skill in the art to utilize Podoloff's nut to attach a fastener to the base of "a completely enclosed hollow" sign body in a facile way.

B. Claims 4-6

17. The June 12 Office Action appears to acknowledge that the EP '194 reference does not disclose a non-magnetic, dish-shaped metal housing, with the magnet within the housing, and in which the housing has an edge extending below the magnet. Rather, the Office Action appears to rely upon the Podoloff reference for that dish-shaped housing element. However, Podoloff does not disclose a dish-shaped housing which is metallic, nor does Podoloff disclose a housing having an edge which extends below the magnet. Rather, Podoloff discloses a resiliently deformable cover

(element **14**) which surrounds the magnet, and which fits uniformly underneath the magnet as is shown in Figure 2. In such an arrangement, an "edge" which extends below the magnet is not defined. Further, I can find no suggestion in either the EP '194 reference or the Podoloff patent for combining the two references for any useful purpose.

18. Claims 5 and 6 further specifically define the advertising sign of Claim 4. In particular, Claim 6 recites the "flexible sleeve between each magnet assembly and the base..." with "a fastener extending through each magnet assembly, each flexible sleeve and into the base." The limitations of EP '194 with respect to the "sleeve" element discussed in paragraphs 5-8 above are fully applicable to this grounds of rejection in the Office Action, since Podoloff does not disclose that his fastener **96** extends through a flexible sleeve at all, and therefore does not save the deficiencies of the EP '194 reference in this regard.

19. The Office Action relies upon the Wagner reference for disclosure of molded receptacles extending from the base to receive magnets. However, the Wagner reference does not overcome the deficiencies of the EP '194 reference with regard to the requirement in Claim 4 for pivotally attaching each magnet to the base as discussed above in paragraphs 12-16.

C. <u>Claims 13-18</u>

20. New Claims 13-18 depend upon and further limit original Claim 1 or original Claim 2. These claims are rejected in the Office Action on the combination of the EP '194, George, Podoloff and Wagner references. Again, however, this combination of references is still deficient with regard to Claim 1 and Claim 2 as is

described above in paragraphs 5-16, and therefore Claims 13-18 patentably distinguish over the cited references for the same reasons.

D. Claims 19-25

21. New Claims 19-25 depend upon and further limit original Claim 3. It is my considered opinion that each of these claims define patentable subject matter over the prior art relied upon in rejecting dependent Claim 3. My opinion in this regard is especially bolstered by the affidavit of Mr. Elmer, which explains the stability of the sign shown in the '100 patent versus those signs depicted in the applied prior art.

III. Commercial Success Indicates Non-Obviousness

22. As indicated above in paragraph 3, I have had an opportunity to review the affidavit of Mrs. Sharon Elmer, President of HTH (the exclusive licensee under the '100 patent). It is my considered opinion that the strong commercial success of the sign structure covered by the '100 patent in light of higher pricing and relatively unchanged advertising expenditures are clear indications that the combination disclosed in the '100 patent would not have been obvious to one of ordinary skill in the art at the time of Mr. Elmer's invention.

FURTHER AFFIANT SAYETH NAUGHT.

Julian C. Renfro

Subscribed and sworn to before me
this 24 day of July, 2003.

Herbert L. Allen

Notary Public
My commission expires:

Herbert L Allen
MY COMMISSION EXPIRES
April 11, 2005
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Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

Personally known to me ✓
Produced identification of:

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PERSONAL DATA

Place of Birth : Tampa, Florida
Marital Status : Married, three adult children
Wife's name : Nancy Graham Renfro

EDUCATION

Early Schooling : Tampa Public Schools

College : University of Michigan
Ann Arbor, Michigan
Bachelor of Science in Engineering
(Aerospace Engineering)
February 1948

Law School : George Washington University Law School
Washington, D.C.
LL.B. November 1953
(Juris Doctor Degree presented in 1968)

Graduate School : Florida Institute of Technology
Melbourne, Florida
Master of Business Administration - 1982

ADMITTED TO PRACTICE

District of Columbia - 1954
U.S. Patent and Trademark Office - 1954
State of Florida - 1961
U.S. Supreme Court - 1961
U.S. District Court, Middle District of Florida
U.S. Court of Appeals, Fifth Circuit

WORK EXPERIENCE

General Electric Company
Test Engineer Program, and
Underwater Propulsion Device Program
1948-1950

Patent Examiner, U.S. Patent and Trademark Office
1951-1953

Pollard, Johnston, Smythe & Robertson
Patent Law Firm - New York City
1954-1955
(Firm dissolved)

Martin Marietta Corporation
Patent Department
Baltimore, Maryland
1955-1960

Business Law Instructor, Martin - Drexel University
Evening Education Program
1959-1960

Martin Marietta Corporation
Patent Counsel
Orlando, Florida
(Primary patent responsibility for most of the years from 1960-1982.)

Private Practice
Patent & Trademark Law
Winter Park, Florida
1982-Present

Expert Witness
Numerous instances since 1991

OTHER

U.S. Navy, V-5 Program
1944-1946

Commissioned as Ensign at Graduation
University of Michigan
1948

Private Pilot's License
1948

Law Review Staff
George Washington University Law School
1953

Registered Patent Attorney
Regis. No. 17,742

Orange County Bar Association

CLUBS AND COMMUNITY ACTIVITIES

Rotary Club of Winter Park, Florida
Past Member, Board of Directors

Sigma Chi Fraternity
Central Florida Alumni Chapter

Delta Theta Phi Law Fraternity

First Congregational Church of Winter Park
Past service on Board of Trustees
Past Chairman, Diaconate (Twice)

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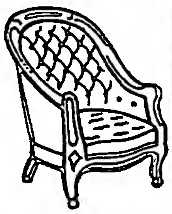
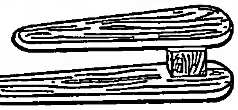
sleepy hollow chair \ˈ⸗⸗;⸗⸗\ *n, usu cap S&H* [fr. *Sleepy Hollow*, valley near Tarrytown, N.Y.] : a deep upholstered chair designed for comfort



Sleepy Hollow chair

sleepy lizard *n* : STUMP-TAIL
sleepy sickness *n* 1 *Brit* : SLEEPING SICKNESS 1 2 *Brit* : ENCEPHALITIS LETHARGICA 3 *NewZeal* : pregnancy disease of sheep
sleepy staggers *n pl* : FORAGE POISONING
sleer \ˈsli(ə)r\ *vi* -ED/-ING/-S [alter. (perh. influenced by 3*slur*) of *sneer*] *dial Eng* : MOCK, SNEER
1**sleet** \ˈslēt, *usu* -ēd.+V\ *n* -s [ME *slete*; akin to MHG *slōz*, *slōze* hailstone, ON *slota* to hang down, ME *sloor* mud — more at SLUR] 1 : precipitation in the form of frozen or partly frozen rain : fine driving icy particles 2 : GLAZE 1a 3 : a mixture or combination of rain and snow
2**sleet** \"\ *vi* -ED/-ING/-S [ME *sleten*, fr. *slete* sleet] : to shower sleet
sleety \ˈslēd.ē, -ēt|, |i\ *adj* -ER/-EST [1*sleet* + -*y*] : consisting of, accompanied by, or of the nature of sleet
1**sleeve** \ˈslēv\ *n* -s *often attrib* [ME *sleþe*, *sleve*, fr. OE *slīefe*; akin to OE *slēfan* to slip (clothes) on, MD *slove* covering, apron, OE *slūpan* to slip, OHG *sliofan*, Goth *sliupan* to slip in, L *lubricus* slippery] 1 a : a part of a garment covering an arm sometimes tied on at the shoulder or usu. set in by stitching at the armscye or cut with a body section of the garment (as a raglan or kimono sleeve) b : SLEEVELET ⟨postmistress in her brown paper ~s —James Stern⟩ 2 a : a tubular part designed to fit over another part: as (1) *or* **sleeve axle** : a hollow axle or quill having relative movement to a shaft inside it (2) : a long bushing or thimble (3) *or* **sleeve coupling** : a piece of pipe or a thimble for covering a joint or for coupling two lengths of piping (4) : a longitudinally split quill or hollow mandrel for temporarily gripping a part (5) : a double tube of copper having a cross section like a figure 8 into which the ends of bare wires are pushed so that when the tube is twisted an electrical connection is made (6) : a pronged tubular spring used in a watch with a negative setting mechanism to set the stem in position (7) : a collar of coarse mesh wire screening placed around the base of a young tree or shrub to prevent injury by rodents (8) : a collar usu. of heavy paper placed around the base of a young plant (as a tomato) to prevent injury by grubs or cutworms b : an open-ended flat or tubular packaging or cover ⟨light bulbs in a ~⟩: as (1) : JACKET 3f (4) (2) : a protective cover usu. made of paper, cloth, or leather over board and slipped over a book to cover all but the fore edge and backbone 3 : MANTLE 7a 4 : SLEEVE TARGET — **up one's sleeve** : held secretly in reserve ⟨has an emergency plan *up his sleeve*⟩
2**sleeve** \"\ *vt* -ED/-ING/-S [ME *sleven*, fr. *sleve* sleeve] 1 a : to furnish, cover, or surround with a sleeve b : to place (a part) as a sleeve upon another 2 : to wipe off or away with the sleeve ⟨*sleeving* the sweat off his face —N.C.McDonald⟩
sleeve bearing *n* : a machine bearing in which the axle or shaft turns in a sleeve that is often grooved to facilitate distribution of lubricant to the bearing
sleeveboard \ˈ⸗,⸗\ *n* : a small ironing board for pressing sleeves
sleeve brick *n* : a tubular firebrick used to line slag vents

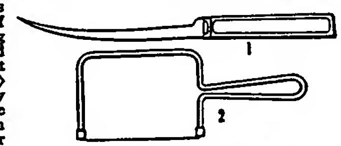


sleeveboard

sleeve button *n* : a button for fastening a cuff; *esp* : CUFF LINK
sleeved \ˈslēvd\ *adj* [1*sleeve* + -*ed*] 1 : made with sleeves ⟨~ garments⟩ 2 : having sleeves of a particular type — usu. used in combination ⟨short-*sleeved*⟩ ⟨puff-*sleeved*⟩ ⟨long-*sleeved*⟩
sleeve dam *n* : a canvas dam for diverting part of the water from an irrigation ditch while the remainder flows through a sleeve whose opening can be regulated
sleeve dog *n* : a dog (as a Pekingese) small enough to carry inside the sleeve or in a muff
sleeve garter *n* : GARTER 1c
sleevehand *n, obs* : CUFF
sleeve·less \ˈslēvləs\ *adj* [ME *sleveles*, fr. OE *slīeflēas*, fr. *slīefe* sleeve + -*lēas* -less] 1 : having no sleeve 2 a : PROFITLESS, FUTILE ⟨the errand they were on was ~ —Virgilia Peterson⟩ b *Brit* : PETTY, FRIVOLOUS ⟨the ~ butterfly world —Llewelyn Powys⟩ — **sleeve·less·ness** *n* -ES
sleeve·let \-lət\ *n* -s [1*sleeve* + -*let*] : a fitted covering for the forearm worn for protection or warmth
sleevelike \ˈ⸗,⸗\ *adj* : resembling a sleeve
sleeve link *n* : CUFF LINK
sleeve nut *n* : a right-and-left nut
sleev·er \ˈslēvə(r)\ *n* -s [1*sleeve* + -*er*] 1 a : a garment worker who sews in sleeves b : a laundry worker who presses sleeves and neckbands of shirts on heated forms 2 : a worker who reinforces the pouring openings of paper bags
sleeve target *n* : a tubular cloth target towed by an airplane for use in air and ground antiaircraft gunnery practice
sleeve valve *n* : an admission and exhaust valve on an internal-combustion engine that consists of one or two hollow sleeves fitting around the interior of the cylinder and moving as the piston moves so that openings in them come into line with inlet and exhaust ports in the cylinder at proper stages in the cycle
sleev·ing \ˈslēviŋ\ *n* -s [1*sleeve* + -*ing*] : a braided, knitted, woven, or extruded tube used to slip over bare or weakly insulated conductors in an electronic assembly — called also *spaghetti*
sleezy *var of* SLEAZY
sleided *adj* [alter. (prob. influenced by *sleyed*, past part. of 2*sley*) of *sleaved*, past part of 1*sleave*] *obs, of silk* : UNTWISTED
1**sleigh** \ˈslā\ *n* -s [D *slee*, alter. of *slede*, fr. MD — more at SLED] 1 a : a vehicle on runners used for transporting persons or goods on snow or ice — called also *sledge* b *dial* : a child's sled 2 : the part of a gun carriage that supports the cannon, recoils with it, and guides it along the slides upon which the cannon moves in recoil
2**sleigh** \"\ *vi* -ED/-ING/-S : to drive or travel in a sleigh
3**sleigh** *var of* SLEY
sleigh bed *n* [1*sleigh*] : a bed common esp. in the first half of the 19th century having a headboard and footboard that are solid and roll outward at the top
sleigh bell *n* : any of various bells commonly attached to a sleigh or to the harness of a horse drawing a sleigh: as a : CASCABEL 3 b : a hemispherical bell with an attached clapper often attached in series to a leather or metal strap fastened to a harness or sleigh
sleigh·er \ˈslāə(r), -le(ə)r, -leə\ *n* -s [2*sleigh* + -*er*] : one that sleighs
1**sleight** \ˈslīt, *usu* -īd.+V\ *n* -s [ME *sleght*, *sleight*, fr. ON *slœgth*, fr. *slœgr* sly, crafty — more at SLY] 1 a : deceitful craftiness : CUNNING, TRICKERY ⟨every interest did by right, or might, or ~, get represented —R.W.Emerson⟩ b (1) : mental ...

Household⟩ c : adroitness and cleverness in accomplishing a deception ⟨verbal *sleight of hand* —Marjorie Grene⟩ ⟨music that is free of self-conscious formulas and tricks of stylistic *sleight of hand* —Winthrop Sargeant⟩ 2 a : a trick of conjuring or juggling requiring sleight of hand b : a cleverly executed trick or deception ⟨the *sleight of hand* by which a faction of the people as voters is invested with the authority of the people —Walter Lippmann⟩
sleighty \ˈslīd.ē\ *adj* [ME, fr. 1*sleight* + -*y*] 1 *obs* : CUNNING, SLY, CRAFTY 2 *dial* : DEXTEROUS, SKILLFUL
slen·dang \ˈslen,daŋ, -dāŋ\ *n* -s [Malay *sĕlendang*] : a long narrow scarf worn esp. by Indonesian women
slen·der \ˈslendə(r)\ *adj*, *usu* -ER/-EST [ME *slendre*, *sclendre*] 1 a (1) : spare in frame or flesh : not fleshy or large of bone ⟨a man of ~ build, being only five feet, five inches in height, and weighing less than one hundred pounds —D.Y.Thomas⟩; *esp* : gracefully slight ⟨she was like a feather in my arms, so ~, so ethereal —Jack London⟩ (2) : not robust : FRAIL ⟨as boy and girl neighbors, each of ~ health, they had enjoyed . . . playing the piano together —M.A.D.Howe⟩ b (1) : thin or insubstantial in proportion to breadth ⟨a ~ volume . . . of twenty-one pages —V.L.Parrington⟩ ⟨a ~ partition wall⟩ (2) : small or narrow in circumference or width in proportion to the length or height ⟨a ~ perpendicular steel framework tower —*Amer. Guide Series: Oregon*⟩; *esp* : delicately elongated in pleasing proportions ⟨a graceful portico of ~ columns —*Amer. Guide Series: N.C.*⟩ (3) : excessively thin and elongated : TENUOUS ⟨the new arrivals took over the defensive sector south of the airfield where the ~ line . . . had been punctured —H.L.Merillat⟩ c : limited in extent, size, quantity, capacity, or scope ⟨published a ~ list of generalized headings —John Lawler⟩ ⟨his critical powers were very ~ —G.C. Sellery⟩ 2 a (1) : inadequate or barely adequate in quantity or supply : SCANTY, MEAGER ⟨compelled by ~ family finances to leave school early —E.M.Lustgarten⟩ (2) : barely adequate in dimensions or scope : NARROW, SCANT ⟨elected by a ~ margin⟩ ⟨a few attempts had been made to deepen and embank the natural streams, but with ~ success —T.B.Macaulay⟩ b (1) : inadequate to justify an inference, opinion, or action ⟨tended to start from some observation . . . and then elaborate on this ~ foundation a theory of the universe —Benjamin Farrington⟩ (2) : having slight or inadequate grounds or justification ⟨a ~ hope⟩ c : slight in significance, seriousness, or complexity ⟨the material is slighter, the texture more ~, and the formal exigencies shorter than the full-size sonata —Norman Demuth⟩ 3 a (1) : FRONT — used of a vowel in some Celtic languages (2) : having the allophone that characterizes it when it is pronounced with a front vowel — used of a consonant in some Celtic languages b : characterized by or consisting of a tone that lacks fullness or volume ⟨fortunate in his recordings, for his rather ~ voice reproduces exceptionally well —P.L.Miller⟩ **syn** see THIN
slender aster *n* : an annual aster (*Aster exilis*) of the southwestern U. S. having usu. simple stems and thin linear upper leaves
slender bent grass *n* : ROUGH BENT
slender blue flag *n* : either of two irises: a : a dwarf iris (*Iris verna*) b : an eastern No. American iris (*Iris prismatica*) with stout ropy stolons and an acutely angled seed pod
slender deutzia *n* : JAPANESE SNOWFLOWER
slender foxtail *n* : a Eurasian annual weedy grass (*Alopecurus myosuroides*) that is locally established (as about seaports) in No. America
slender gooseberry *n* : MISSOURI GOOSEBERRY
slender grama *n* : a tufted perennial grama (*Bouteloua filiformis*) of Texas, Arizona, Mexico, and Panama having erect or spreading sparingly branched culms
slen·der·ish \-dərish\ *adj* : somewhat slender
slen·der·ize \-də,rīz\ *vt* -ED/-ING/-S 1 : to make slender 2 : to cause to appear slender
slender loris *n* : LORIS 1a
slen·der·ly *adv* [*slender* + -*ly*] 1 : to a small degree : SLIGHTLY, SPARSELY ⟨~ endowed with natural resources —W.B.Fisher⟩ 2 : in a slender manner ⟨a ~ built man⟩
slen·der·ness *n* -ES : the quality or state of being slender
slenderness ratio *n* : the ratio of the length of a structural member (as a column) to its least radius of gyration
slender rush *n* : a tufted wiry rush (*Juncus tenuis*) of wide distribution
slender vetch *n* : a Eurasian vetch (*Vicia tetrasperma*) with blue or purple flowers that is naturalized in eastern No. America — called also *lentil tare*
slender wheat grass *n* : a No. American grass (*Agropyron trachycaulum*) cultivated in the western U. S. for its excellent forage
1**slent** \ˈslent\ *n* -s [ME — more at SLANT] *chiefly Scot* : SLOPE, PITCH, DECLIVITY
2**slent** \"\ *vi* -ED/-ING/-S [ME *slenten* — more at SLANT] 1 *dial Brit* : SLANT, SLOPE 2 *dial Brit* : to move or glance sideways
3**slent** \"\ *vt* -ED/-ING/-S [origin unknown] *archaic* : TEAR, SPLIT
slen·tan·do \slen-ˈtän(,)dō\ *adv* (*or adj*) [It, fr. verbal of *slentare* to slow down, fr. *s-* away, off (fr. L *dis-* or *ex-*) + *lento* slow, fr. L *lentus* pliant, tough, slow — more at LITHE] : gradually decreasing in tempo — used as a direction in music
sle·pez \slə̇ˈpets\ *n* -ES [Russ *slepets*, lit., blind one, fr. *slepoi* blind] : a mole rat (*Spalax typhus*)
slept *past of* SLEEP
sleugh \ˈslü\ *Brit var of* 1SLOUGH 1b
1**sleuth** \ˈslüth\ *or* **sleuthhound** \ˈ⸗,⸗\ *n* -s [*sleuth*, short for *sleuthhound*, fr. ME, fr. *sloth*, *sleuth* track of a person or animal (fr. ON *slōth*) + *hound*] 1 : a hound that tracks by the scent; *specif* : BLOODHOUND 2 : DETECTIVE; *broadly* : one that searches out and investigates obscure information, facts or phenomena ⟨been a good ~ and critic in assembling the text —T.D.Clark⟩
2**sleuth** \"\ *vb* -ED/-ING/-S *vi* : to act as a detective or investigator : follow a track, trace, or clue : search for information or facts ⟨assigned eleven reporters and five lawyers to ~ out the facts —*Time*⟩ ~ *vt* : to search into the affairs or follow the trail of (a person)
1**slew** *past of* SLAY
2**slew** *var of* SLOUGH
3**slew** *var of* SLUE
4**slew** *also* **slue** \ˈslü\ *n* -s [IrGael *sluagh*] : a large number or quantity : LOT ⟨a whole ~ of uptown rowdies —Paul Gallico⟩ ⟨had ~s of work —Conrad Richter⟩
5**slew** \"\ *n* -s [origin unknown] : filling consisting of usu. three rods worked together — see BASKET illustration
1**slewed** \-üd\ *adj* [fr. past part. of 3*slew* (to twist)] : somewhat intoxicated : TIPSY
2**slewed** \"\ *adj* [5*slew* + -*ed*] *of a basket* : filled in with slews woven around the stakes and by-stakes
slew·ing \ˈslüiŋ\ *n* -s [5*slew* + -*ing*] 1 : the act of filling in in basketmaking with two or more rods worked together 2 : SLEWS
1**sley** *or* **slay** *or* **sleigh** \ˈslā\ *n* -s [ME *sleye*, *slay*, fr. OE *slege*, lit., act of beating, stroke; akin to OHG *slag* blow, ON *slagr*, OE *slēan* to strike, beat, slay — more at SLAY] 1 a : a weaver's reed b : a movable frame in a loom that carries the reed 2 : a guideway in a knitting machine 3 : the number of warp ends per inch in a cloth 4 : a device in a lace machine that contains small holes through which some warp ends pass and ...

spatula or paddle used esp. for mixing or spreading medical compounds b : a knife with a broad or wedge-shaped blade used esp. for serving food ⟨a fish ~⟩ c *archaic* : an iron bar flattened at one end for use as a fire shovel d : a tool with a flat blade for scraping or stripping (as for flensing a whale); *specif* : SLICE BAR e (1) : the removable sliding bottom of a printer's slice galley (2) : INK KNIFE 3 : a part separated from the whole : SEGMENT, SHARE ⟨territorial claims to ~s of Antarctica —J.D.M.Blyth⟩ ⟨make a bid for a ~ of the . . . prize money —H.W.Young⟩ ⟨for plot must be substituted the reality of a ~ of life —F.B.Millett⟩
2**slice** \"\ *vb* -ED/-ING/-S [ME *sklicen*, fr. MF *esclicier*, *esclissier* to splinter, fr. OF, of Gmc origin; akin to OHG *slīzan* to tear apart — more at SLIT] *vt* 1 a : to cut with or as if with a knife ⟨~ bread⟩ ⟨~ a melon in two⟩ ⟨~ hickory sapwood for chair-bottom splints —*Amer. Guide Series: Ark.*⟩ ⟨jets ~ the air like giant scythes —Claudia Cassidy⟩ ⟨production would be *sliced* by more than half —*Newsweek*⟩ b : to divide into segments as if by cutting ⟨the chimney's shade . . . ~s the glistening roof —Thomas Vance⟩ ⟨the data . . . have not been *sliced* in all the ways that they might —R.M.Goldman⟩ 2 a : to cut off cleanly with or as if with a knife ⟨this machine ~s off a narrow edge from each envelope —J.R.Gregg⟩ ⟨the industry will be able to ~ $30,000,000 from its . . . annual fuel bill —D.C.Spaulding⟩ b (1) : to cut a passage through ⟨expressways . . . ~ our parks —Joseph Hudnut⟩ (2) : to make by or as if by slicing ⟨~ an opening in a wall⟩ ⟨troops . . . *sliced* their way through the crumpled resistance —*Police Gazette*⟩ 3 : to stir, spread, or clear with a slice ⟨~ printer's ink⟩ ⟨~ a grate⟩ 4 : to hit (as a golf ball or tennis ball) so that a slice results — distinguished from *drive*; compare 2HOOK 6b ~ *vi* 1 : to cut or seem to cut cleanly ⟨the turbine blade . . . *sliced* into the fuel line —J.A.Michener⟩ ⟨wind . . . *slicing* through his overcoat as though it were the thinnest cotton —Irwin Shaw⟩ 2 a : to move with a cutting action often on the diagonal ⟨the planes *sliced* on over —James Jones⟩ ⟨the luxury liner . . . *sliced* through the Atlantic today in quest of a speed record —*New Orleans States*⟩ ⟨the bull's horn *slicing* by his shoulder —Barnaby Conrad⟩ b : to hew a passage ⟨a four-lane superhighway . . . ~s through the craggy sierra —*Lamp*⟩ 3 a : to put a slice on a stroke or ball b *of a ball* : to curve in flight in the direction of a slice
3**slice** \"\ *n* -s : a flight of a ball (as in golf, tennis, volley ball) that deflects to the right of a right-handed player or to the left of a left-handed player usu. as a result of being hit across its center line; *also* : a ball following such a course — compare HOOK, SPIN
slice·able \-səbəl\ *adj* : capable of being sliced
slice bar *n* [2*slice* + *bar*] : a steel bar with a broad flat blade for chipping or scraping operations (as breaking up clinkers or removing excess dirt from a trench wall)
sliced veneer *n* [fr. past part. of 2*slice*] : veneer that is sheared from the flat surface of a flitch or squared log
slice galley *n* [1*slice*] : an old form of printer's galley having a sliding bottom for handling heavy forms
slice–of–life \ˈ⸗⸗ˈ⸗\ *adj* [fr. the noun phrase *slice of life*, trans. of F *tranche de vie*] : of, relating to, or marked by the accurate transcription into drama or another art form of a segment of actual experience ⟨in these *slice-of-life* literary times, the novel that analyzes life at more than one level is somewhat of a rarity —Benjamin Appel⟩
slic·er \ˈslīsə(r)\ *n* -s [2*slice* + -*er*] 1 : an implement designed for cutting: as a : a piece of cutlery for slicing food by hand ⟨roast ~⟩ ⟨fruit ~⟩ ⟨cheese ~⟩ b : a mechanically operated device usu. employing a revolving disk for slicing ⟨food ~⟩ ⟨veneer ~⟩ ⟨~ for sugar beets⟩ c : a lapidary's slitter d : CLIPPER 2b 2 : a person using a cutting implement: as a : one that cuts materials (as butter, bread, fruit) by hand or by machine b : a worker who cuts slits in turpentine trees for the insertion of gutters



slicers 1a: *1* fruit, *2* cheese

slicht \ˈslikt\ *Scot var of* SLIGHT
1**slicing** *n* -s [fr. gerund of 2*slice*] : the act or process or a result of cutting; *specif* : TOP SLICING
2**slicing** *adj* : of, relating to, or adapted for cutting ⟨~ blade⟩ ⟨~ method⟩
1**slick** \ˈslik\ *vb* -ED/-ING/-S [ME *sliken*; akin to OE *nigslīcod* newly smoothed, glossy, OHG *slīhhan* to glide — more at 2SLICK] *vt* 1 a : to make (a surface) flat or slippery : LEVEL, POLISH ⟨a spatula is used to ~ . . . the flour on a board —*Correspondence Course in Flour Milling*⟩ ⟨men . . . were ~*ing* the skids with grease —James Dugan⟩ b : to give an elegant finish to : REFINE, SMARTEN ⟨~*ed* up and sentimentalized the . . . rough-hewn original story —*Time*⟩ ⟨called in a decorator to ~ it up, turning the . . . café into a restaurant de luxe —A.J.Liebling⟩ c : SLEEK 2 2 a : to give a smooth and glossy appearance to (the hair) esp. by combing with water or pomade : PLASTER ⟨hair ~*ed* down and then brushed up in a barber's curl above his left eye —B.A.Williams⟩ b : to make presentable : spruce up ⟨dress as if they were ~*ed* up for Saturday night in town —J.H.Jackson⟩ ⟨Mother was . . . a great one for keepin' things ~*ed* up —J.C.Lincoln⟩ ~ *vi* 1 : to spruce up : make oneself presentable ⟨he ~*ed* up and courted her in the regular way —Helen Rich⟩ 2 : to glide smoothly : SLIP ⟨the logs ~*ed* along without jamming or stranding —Hugh Fosburgh⟩
2**slick** \"\ *adj* -ER/-EST [ME *slike*, akin to MHG *slīch* slime, OHG *slīhhan* to glide, ON *slīkr* smooth, Gk *ligdēn* grazing the surface, *leios* smooth — more at LIME] 1 a : having a glassy surface : SMOOTH, SLIPPERY ⟨waters ~ with oil —*Time*⟩ ⟨the grass was ~ from the night's dew, and the men slipped frequently as they moved downhill —Norman Mailer⟩ b : having surface glitter : polished but not profound : GLIB, GLOSSY ⟨an entertaining job of ~ writing, all surface and no depth —B.R.Redman⟩ ⟨turned out ~ and sound conventional likenesses in the best School of Fine Arts manner —*Time*⟩ c : lacking in complexity or originality : OBVIOUS, CONTRIVED ⟨the young gentlemen are altogether too pat, and the adventures which befall them altogether too ~ —Virginia Woolf⟩ ⟨neatly plotted story of the ~ variety, easily read, soon forgotten —Jerome Stone⟩ ⟨no ~ solutions, no easy cures are peddled —R.J.McCracken⟩ 2 *archaic* : SLEEK 1 ⟨fattens all their beasts of war, and makes them ~ and fine —John Fryer⟩ 3 a : characterized by subtlety or nimble wit : CLEVER, INGRATIATING ⟨this ~ type of youngster anticipates exactly how adults will react to him and plays on their sensibilities —Agnes Meyer⟩ ⟨a good many ~ sales tricks —J.M. Guilfoyle⟩ ⟨approached this problem in . . . too unctuous and ~ a mood —A.M.Schlesinger b.1917⟩; *esp* : WILY ⟨a pair of ~ operators had given the district a bad name by salting a barren claim —Oscar Lewis⟩ b : characterized by expert proficiency : DEFT, SKILLFUL ⟨a notable level of ~ technical perfection in every department —Arthur Knight⟩ ⟨smooth ground attack and incredibly ~ passing attack —*New Yorker*⟩ 4 : extremely good : FIRST-RATE 5 : lacking identification marks : UNBRANDED — used of livestock on the range 6 a : SLEEK 3 ...

plumage streaked with brown or gray — see CHIPPING SPARROW, FIELD SPARROW, HEDGE SPARROW, SAGE SPARROW, SAVANNAH SPARROW, SONG SPARROW, TREE SPARROW 3 : MOUSE GRAY 4 a : an undersized person b : one who is of aggressively active and markedly self-reliant temperament

sparrowbill \'ˌ==ˌ=\ *n* : SPARABLE

spar·row-grass \'==ˌgras, -ˌgrəs\ *n* [by folk etymology fr. *sparagus*] *chiefly dial* : ASPARAGUS

sparrow hawk *n* [ME *sparowhauk*, fr. *sparwe, sparowe, sparow* sparrow + *hauk* hawk] 1 : a small Old World hawk (*Accipiter nisus*) similar in habits, size, and general coloration to the American sharp-shinned hawk 2 : a small No. American falcon (*Falco sparverius*) that is closely related to the European kestrel, is chiefly rufous and slaty blue above and buffy white with dark markings below, and feeds mostly on large insects (as grasshoppers) 3 : any of various hawks or falcons of small size: as a : PIGEON HAWK b : BUSH HAWK 4 : a small anvil used by silversmiths

spar·row·ish \'sparəwish, -rōi- *also* -per-\ *adj* : resembling or suggesting a sparrow — **spar·row·ish·ness** *n* -ES

sparrowlike \'==ˌ=\ *adj* : resembling a sparrow

sparrow owl *n* 1 : PYGMY OWL 2 : LITTLE OWL

sparrow-tail *also* **sparrow-tailed** \'==ˌ=\ *adj* : SWALLOW-TAILED

spar·rowy \-rəwē, -rōl,]i\ *adj* 1 : frequented by sparrows : infested with sparrows 2 : SPARROWLIKE

spar·ry \'spärē, -pär-, -ri\ *adj* [⁴*spar* + *-y*] : resembling, consisting of, or abounding with spar : SPATHIC (~ lode) (~ luster)

sparry iron *n* : SIDERITE

sparry limestone *n* : a coarsely crystalline marble

spars *pl of* SPAR, *pres 3d sing of* SPAR

¹**sparse** *vt* [L *sparsus*, past part. of *spargere* — more at SPARK] *obs* : SCATTER, DISPERSE, DISTRIBUTE

²**sparse** \'spärs, -pás\ *adv* [L *sparsus*, past part.] : SPARSELY, THINLY

³**sparse** *also* **sparce** \"\ *adj* -ER/-EST [L *sparsus*, past part.] : of few and scattered elements : having spaces between the component units : not thickly grown or settled : thinly scattered : SCANTY (~ beard) (~ population) (~ shade of one willow tree —Eudora Welty) **syn** see MEAGER

sparse·ly *adv* : in a sparse manner : SCANTILY, THINLY (~ inhabited country)

sparse·ness *n* -ES : the quality or state of being sparse

spar·si·ty *also* **spar·ci·ty** \'spärsəd·ē, -pàs-, -ətē, -i\ *n* -ES : the state of being sparse : SCANTINESS (~ of vegetation)

¹**spar·tan** \'spärtᵊn, -pát-\ *n* -S [ME, fr. L *Spartanus*, adj. & n., fr. *Sparta*, city in ancient Greece (fr. Gk *Sparta, Spartē*) + L *-anus* -an] 1 *cap* : a native or inhabitant of ancient Sparta 2 *usu cap* : a person of great courage and fortitude

²**spartan** \"\ *adj, usu cap* [L *Spartanus*] 1 : of or relating to Sparta in ancient Greece 2 : marked by simplicity, frugality, avoidance of comfort and luxury, strict self-discipline, severity of manner, brevity in speech, hardihood in the face of pain or danger (love their homes and often derive a kind of *Spartan* satisfaction from running them —A.C.Spectorsky) (lived with *Spartan* simplicity . . . eating frugal meals of farm produce and sleeping in a camp bed —*N.Y.Times*) (neat and *Spartan* look of military posts all over the world —Henriette Roosenburg)

spar·tan·ic \(ˈ)spär¦tanik\ *adj, usu cap* [L *Spartanus* + E *-ic*] : SPARTAN — **spar·tan·i·cal·ly** \-nək(ə)lē\ *adv, usu cap*

spar·tan·ism \'spärtᵊnˌizəm, -pát-\ *n* -S *usu cap* : the moral quality or traits ascribed to the ancient Spartans : austerity in mode of living or in self-discipline : indomitableness or endurance esp. under great stress; *also* : conduct characteristic of such moral quality or traits

spar·tan·ize \-ᵊnˌīz\ *vb* -ED/-ING/-S *often cap* [²*Spartan* + *-ize*] *vt* : to make Spartan in character : imbue with Spartan ideals (tried to ~ his whole household) ~ *vi* : to become Spartan in character : live in a Spartan manner

spar·tan·ly *adv, usu cap* : in a Spartan manner : with unflinching courage : with uncomplaining endurance of pain

spar·te·ine \'spärd·ēˌēn, -d·ēən\ *n* -S [ISV *spart-* (fr. NL *Spartium* genus of shrubs, fr. L *spartum* broom + NL *-ium*) + *-eine*] : a liquid tetracyclic alkaloid $C_{15}H_{26}N_2$ obtained esp. from the tops of the common broom and used in the form of its crystalline sulfate esp. formerly in the treatment of tachycardia and other irregularities of the heart

spar·te·rie \'spärd·ərē\ *n* -S [F, fr. *sparte* esparto (fr. L *spartum*) + *-erie* -ery — more at ESPARTO] : a fabric or articles made of esparto

spart grass \'spärt-\ *n* [L *spartum* — more at ESPARTO] 1 : ESPARTO 2 : a tall rather broad-leaved cordgrass (*Spartina alterniflora*) common in salt marshes of the eastern U.S. and introduced along the European coast and in the Pacific northwest

sparth \'spärth\ *n* -S [ME *sparthe*, fr. ON *spartha*] : a battle-ax used by the Irish in the middle ages

spar·ti·ate \'spärd·ēˌāt, -rshē-\ *n* -S *cap* [L *Spartiates*, fr. Gk *Spartiatēs*, fr. *Sparta, Spartē* Sparta] : a member of the dominant race of ancient Laconia : SPARTAN

spar·ti·na \'spärtᵊnə\ *n* [NL, fr. Gk *spartinē* rope, cord; akin to Gk *speira* spiral — more at SPIRE] 1 *cap* : a small but widely distributed genus of grasses occurring chiefly in salt marshes along the coastal regions of Europe and No. and So. America and having stiff culms, panicled spikelets, and flowers with three glumes 2 *also* **spartina grass** -S : any grass of the genus *Spartina* — called also *cord grass*; see MARSH GRASS, SALT GRASS

spar·tle \'spärtᵊl\ *vi* -ED/-ING/-S [D *spartelen*, fr. MD *spartelen, spertelen, sportelen*; akin to MLG *spartelen, sportelen, spertelen* to sprawl, thrash about, OHG *sprazzalōn*, Norw *spratla* to sprawl, thrash about, OHG *sprinzan* to jump up — more at SPRINT] *Scot* : to kick about : SPRAWL

spar torpedo *n* : an explosive charge mounted on the end of a long spar and designed to be carried to a target by an attacking ship

spar tree *n* : a tall tree trimmed and well-guyed and used for supporting the lead blocks for high-line logging

spar·us \'spa(a)rəs\ *n, cap* [NL, fr. L, gilthead, fr. Gk *sparos* — more at SPEAR] : the type genus of the family Sparidae

spar varnish *n* : an exterior waterproof varnish suitable for use on the spars of ships

spar·ver \'spärvər\ *n* -S [ME *sperver, sparver*, fr. MF *esprevier, espervier* sparrow hawk, canopy bed, of Gmc origin; akin to MD *sperware* sparrow hawk, MLG *sparwer, sperwer*, OHG *sparwāri*; all fr. a prehistoric OHG-MD-MLG compound whose first element is represented by OHG *sparo* sparrow, and whose second element is represented by OHG *aro* eagle, altered under the influence of the suffix represented by OHG *-āri* -er — more at SPARROW, ERNE] *obs* : the canopy of a bed

spas *pl of* SPA

spasm \'spazəm\ *n* -S [ME *spasme*, fr. MF, fr. L *spasmus*, fr. Gk *spasmos*, fr. *span* to draw, pull, tear — more at SPAN] 1 a : an involuntary and abnormal contraction of muscle or muscle fibers or of a hollow organ (as an artery, the colon, the esophagus) that consists largely of involuntary muscle fibers — compare CLONUS, TONUS b : the state or condition of a muscle or organ affected with spasms (the renal artery went into ~) 2 : a sudden violent and temporary activity, effort, or emotion : BURST, FIT (a ~ of antagonism) (a ~ of economy) (a ~ of fear) (a ~ of nervousness) (a ~ of pain)

spas·mat·ic \(ˈ)spaz¦mad·ik\ *or* **spas·mat·i·cal** \-d·əkəl\ [...]

[...]ing or proceeding fitfully or intermittently : lacking continuity of effort, production, or activity : INTERMITTENT (a continuous discussion of international affairs, not a ~ action at times of crisis —Clement Attlee) (growth of the towns was ~ —*Amer. Guide Series: Mass.*) (streamlining . . . may prove chronic or ~ —C.C.Furnas) 3 : subject to outbursts of emotional excitement — **spas·mod·i·cal·ly** \-dək(ə)lē, -dēk-, -li\ *adv*

spas·mo·dism \'spazməˌdizəm\ *n* -S [*spasmodic* + *-ism*] : spasmodic emotion

spas·mo·dist \-ˌdəst\ *n* -S [*spasmodic* + *-ist*] : one that is spasmodic in work or manner

spas·mo·gen·ic \¦spazmə¦jenik\ *adj* [ISV *spasm* + *-o-* + *-genic*] : inducing spasm (a ~ drug)

spas·mol·y·sis \spaz'mäləsəs\ *n, pl* **spasmoly·ses** \-ləˌsēz\ [NL, fr. L *spasmus* spasm + NL *-o-* + *-lysis*] : the relaxation of muscle spasm

¹**spas·mo·lyt·ic** \¦spazmə¦lid·ik\ *adj* [ISV, fr. NL *spasmolysis*, after such pairs as NL *hypnosis*: E *hypnotic*] : tending or having the power to relieve spasms or convulsions — **spas·mo·lyt·i·cal·ly** \-d·ək(ə)lē\ *adv*

²**spasmolytic** \"\ *n* -S : a spasmolytic agent

spas·mo·neme \'spazməˌnēm\ *n* -S [*spasm* + *-o-* + *-neme*] : a contractile filament (as in various stalked protozoans)

spas·mo·phil·ia \ˌspazmə'filēə\ *n* -S [NL, fr. L *spasmus* spasm + NL *-o-* + *-philia*] : an abnormal tendency to convulsions, tetany, or spasms from even slight mechanical or electrical stimulation

spas·mo·phil·ic \¦==¦filik\ *or* **spas·mo·phile** \'==ˌfīl\ *adj* [*spasm* + *-o-* + *-philic* or *-phile*] : of, relating to, or affected by spasmophilia

¹**spas·tic** \'spastik, -paas-, -pais-, -tēk\ *adj* [L *spasticus*, fr. Gk *spastikos* drawing, fr. (assumed) *spastos*, verbal of *span* to draw + *-ikos* -ic — more at SPAN] 1 a : of, relating to, or characterized by spasm (~ colon) b : suffering from spastic paralysis (~ child) 2 : characterized by spasms esp. of movement or activity : SPASMODIC (a ~ motion of alternate digging and ducking —Van Van Praag)

²**spastic** \"\ *n* -S : one suffering from spastic paralysis

spas·ti·cal·ly \-tək(ə)lē, -tēk-, -li\ *adv* : in a spastic manner (the ~ gyrating performers —*Time*)

spas·tic·i·ty \=ˈstisəd·ē, -ətē, -i\ *n* -ES : the state of being spastic

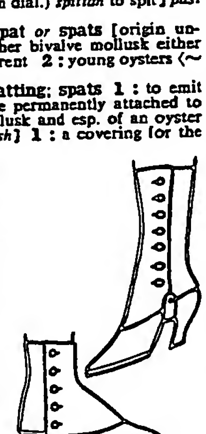
spastic paralysis *n* : paralysis marked by tonic spasm of the muscles affected and by increased tendon reflexes — compare CEREBRAL PALSY

¹**spat** [ME *spatte* (past of *speten* to spit), fr. OE *spǣtte*, past of *spǣtan* to spit; akin to OE (northern dial.) *spittan* to spit] *past of* SPIT

²**spat** \'spat, *usu* -ad·+V\ *n, pl* **spat** *or* **spats** [origin unknown] 1 : a young oyster or other bivalve mollusk either before or after it first becomes adherent 2 : young oysters (~ is abundant this year)

³**spat** \"\ *vi* **spatted; spatted; spatting; spats** 1 : to emit spawn (oysters ~) 2 : to become permanently attached to some solid object — used of a mollusk and esp. of an oyster

⁴**spat** \"\ *n* -S [short for *spatterdash*] 1 : a covering for the instep and ankle usu. made of cloth or leather with a side closing and a strap under the instep and worn for protection or appearance — usu. used in pl. (dressed in ~s, cutaway, and silk hat) 2 : a fairing around the wheel of a fixed airplane landing gear


spats 1

⁵**spat** \"\ *n* -S [prob. of imit. origin] 1 : a usu. petty quarrel that flares up quickly and is of short duration 2 *chiefly dial* : a quick sharp blow : SLAP 3 a : something that spatters : a light splash (a ~ of rain) (~s of mud) b : a sound like that of rain falling in large drops (the ~ of bullets against a stone wall) **syn** see QUARREL

⁶**spat** \"\ *vb* **spatted; spatted; spatting; spats** [prob. of imit. origin] *vt* 1 *chiefly dial* a : SLAP b : to clap together (as the hands) 2 : to strike with a sound like that of rain falling in large drops (bullets . . . *spatting* the leaves —J.H.Stuart) ~ *vi* 1 : to quarrel usu. pettily or briefly and repeatedly (a teenager *spatting* with her mother) 2 : to strike or fall and strike with a sound like that of rain falling in large drops (bullets were *spatting* down —R.H.Newman)

¹**spa·tan·gid** \spə'tanjəd\ *or* **spat·an·goid** \'spatᵊnˌgȯid, spə'tanˌgȯid\ *or* **spat·an·goi·de·an** \¦spatᵊn¦gȯidēən\ *adj* [*spatangid* fr. NL *Spatangida*; *spatangoid* fr. NL *Spatangoida*; *spatangoidean* fr. NL *Spatangoida* + E *-ean*] : of or relating to the Spatangina

²**spatangid** \"\ *or* **spatangoid** \"\ *or* **spatangoidean** \"\ *n* -S : a sea urchin of the suborder Spatangina : HEART URCHIN

spa·tan·gi·da \spə'tanjədə\ *or* **spat·an·goi·da** \ˌspatᵊn'gȯidə\ *or* **spat·an·goi·dea** \-dēə\ [NL, fr. *Spatangus* + *-ida* or *-oida* or *-oidea*] *syn of* SPATANGINA

spat·an·gi·na \ˌspatᵊn'jīnə, -jēnə\ *n pl, cap* [NL, fr. *Spatangus* + *-ina*] : a suborder of sea urchins (order Exocycloida) comprising numerous more or less flattened approximately heart-shaped sea urchins that exhibit considerable secondary bilateral symmetry — compare CLYPEASTRINA

spa·tan·gus \spə'taŋgəs\ *n, cap* [NL, fr. Gk *spatangēs*, a kind of sea urchin] : an ill-defined genus (the type of the family Spantangidae) of sea urchins including many of the commonest and best-known heart urchins

¹**spatch·cock** \'spachˌkäk\ *n* -S [prob. alter. of *spitchcock*] : a fowl split and grilled usu. immediately after being killed and dressed

²**spatchcock** \"\ *vt* -ED/-ING/-S 1 : to prepare (as a fowl) for eating as or as if a spatchcock 2 : to introduce by or as if by interpolation or insertion (task of attempting to ~ the new evidence into an existing framework —*Times Lit. Supp.*) (all the random majesty of the place appeared ~*ed*, rectified, and jumbled —John Cheever)

¹**spate** \'spāt, *usu* -ād·+V\ *n* -S [ME] 1 : FRESHET, FLOOD (every waterfall roars in ~ —E.J.Moran) (an Arkansas River ~ —S.H.Adams) (a migration into the valley that continued in full ~ beyond the middle of the century —*Amer. Guide Series: Va.*) 2 *chiefly Scot* : a sudden heavy rainstorm 3 a : a large number or amount (a ~ of books on gardening) (a ~ of cowboy movies) (a ~ of publicity) b : a sudden or strong outburst : RUSH (a ~ of anger) (a ~ of words)

²**spate** \"\ *vt* -ED/-ING/-S *chiefly Scot* : FLOOD

spatfall \'=ˌ=\ *n* [²*spat* + *fall*] : the settling and attachment of young bivalves (as oysters or mussels) to the substrate

spath \'spath, 's(h)pāt\ *n* -S [G *spat* (formerly spelled *spath*), fr. MHG *spat, spāt*; akin to OHG *spān* chip, thin slab of wood — more at SPOON] *archaic* : ⁴SPAR

spatha \'spathə, -pāthə\ *n, pl* **spathae** \-ˌthē, -ˌthī\ [L, fr. Gk *spathē* blade — more at SPADE] 1 : a broadsword with blunt point used by the ancient Greeks and Romans 2 : a long heavy sword used by Britons, Saxons, and Normans

spa·tha·ceous \(ˈ)spā¦thāshəs, (ˈ)spa¦th-, spə'th-, (ˈ)spa¦th-\ *adj* [*spathe* + *-aceous*] : having a spathe : resembling a spathe

spath·al \'spāthəl, -th-\ *adj* [*spathe* + *-al*] : SPATHACEOUS

[...]

[...]al and subtropical regions and having large odd-pinnate or ternate leaves and showy orange or scarlet flowers in terminal panicles or racemes 2 *also* **spa·tho·dia** \"\ -S : any plant of the genus *Spathodea*

¹**spath·ose** \'spaˌthōs\ *adj* [*spath* + *-ose*] : SPATHIC

²**spath·ose** \'spāˌthōs, -thōs\ *also* **spath·ous** \-ˌthəs, -thəs\ *adj* [*spathe* + *-ose* or *-ous*] : SPATHACEOUS

spath·u·late \'spathyəˌlāt, -ˌlāt\ *adj* [LL *spathula, spatula* + E *-ate* — more at EPAULET] : SPATULATE (~ petals of a flower)

spa·tial *or* **spa·cial** \'spāshəl\ *adj* [*spatial* fr. L *spatium* space + E *-al*; *spacial* alter. of *spatial* — more at SPEED] 1 a : of or relating to space (~ pioneers will face such problems as . . . cosmic radiation —*Time*) (elimination of ~ barriers by speedy transportation and communication —John Dewey) (the changing ~ distribution of our population —Sidney Goldstein) b : subject to the conditions of space : limited by space (it is one of the facts of our being that we are temporal and ~ —Norman Kelman) 2 : occupying space : involving relations in space (this ~ theme fulfills an ancient requirement of the art of architecture — namely, to balance artfully the building masses and open spaces —Walter Gropius) — **spa·tial·ly** \-əlē, -əli\ *adv*

spatial isomerism *n* : STEREOISOMERISM

spa·ti·al·i·ty \ˌspāshē'aləd·ē\ *n* -ES : the quality or state of being spatial — distinguished from *temporality*

spa·tial·iza·tion \ˌspāshələ'zāshən, -ˌlī'z-\ *n* -S : the act of spatializing

spa·tial·ize \'==ˌlīz\ *vt* -ED/-ING/-S [*spatial* + *-ize*] : to give spatial form to : think of as spatial or in space relations : localize in space (man . . . invented writing to ~, i.e. preserve, language —Susanne K. Langer) (our inveterate cognitive disposition to ~ everything —H.A.Murray)

spa·ti·ate \'spāshēˌāt\ *vi* -ED/-ING/-S [L *spatiatus*, past part. of *spatiari*, fr. *spatium* space] : ROVE, RAMBLE, STROLL

spatio- *comb form* [L *spatium* — more at SPEED] 1 : space (*spatio*graphy) 2 : spatial and (*spatio*temporal)

spa·ti·og·ra·phy \ˌspāshē'ägrəfē\ *n* -ES [*spatio-* + *-graphy*] : a science that deals with space beyond the earth's atmosphere; *esp* : the description of the physical characteristics of the moon and the planets

spa·tio·temporal \¦spāshē(ˌ)ō+\ *adj* [*spatio-* + *temporal*] : having the quality of something that is at once extended and enduring : of or relating to the spatial and temporal together : of space-time (the important elements of experience are ~ relations —M.M.Deems) (the ~ limits within which our reason functions —*Times Lit. Supp.*) — **spa·tio·temporally** \"+\ *adv*

spats *pl of* SPAT, *pres 3d sing of* SPAT

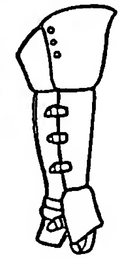
spat·ted \'spad·əd, -atəd\ *adj* [⁴*spat* + *-ed*] : furnished with or wearing spats (he was in Paris . . . still ~, still wearing his cutaway —Djuna Barnes)

¹**spat·ter** \'spad·ə(r), -atə-\ *vb* -ED/-ING/-S [akin to Fris *spatte, spatterje* to spatter, splash, MD *spatten*, Flem *spetteren*] *vt* 1 : to splash with a liquid or with any wet substance : soil by splashing with drops or small portions (~ the floor with grease) 2 : to scatter by splashing : sprinkle around (~ blood) (~ mud on one's clothes) 3 : to cover with or as if with splashes or spots : SPOT (the bare floor ~*ed* with moonlight —Amy Lowell) (green tweed ~*ed* with white silk flecks —*New Yorker*) (mistakes and misrepresentations ~*ed* throughout the whole article —*Times Lit. Supp.*) 4 : to injure by aspersion : DEFAME (as an advocate, he must praise the man whom, a year before, he had ~*ed* with ignominy —J.A. Froude) (satire . . . has an awkward way of ~*ing* its author —*Listener*) ~ *vi* 1 : to sputter as if ejecting something distasteful : SPLUTTER 2 a : to jet or spurt forth in scattered drops (by hitting the ferrule of the brush against the opposite wrist and causing dots of color to ~ upon the setting —H.F. Helvenston) (spray from one of the hoses ~*ed* over the longshoremen —Vernon Pizer) b : to drop or fall with or as if with the sound of heavy drops of rain (earth damp and fragrant from the dew which ~*s* from the overhanging trees —Tom Marvel) (water-stream blows . . . and ~*s* into the basin with a light tinkling —Amy Lowell)

²**spatter** \"\ *n* -S 1 a : the act or process of spattering or the state of being spattered : SPLASHING b : SPATTER DASH 2 c : the noise of spattering 2 a : a drop or splash spattered on something : a spot or stain due to spattering (clean mud ~*s* off clothing) (wipe grease ~*s* off the wall) b : a small number or quantity : SPRINKLE (a ~ of rain) (a ~ of applause) (heavy artillery fire and a ~ of infantry raids —*Current History*) (a continual ~ of musketry fire —Kenneth Roberts) 3 *West* : RUDDY DUCK

spatter cone *n* : a miniature volcanic cone on a crater floor or lava flow from which lava is ejected in drops or gobs

spatterdash \'==ˌ=\ *n* [¹*spatter* + *dash*] : a usu. knee-high legging worn as a protection from water and mud — usu. used in pl.


spatterdash, 18th century

spatter dash \"\ *n* [¹*spatter* + *dash*] 1 : a finish produced on stucco by dashing a very thin mixture of cement and coarse sand against a surface of fresh mortar — called also *roughcast* 2 *usu* **spatter-dash** \"\ : a finish produced by spattering paint of a different color on a ground coat

spat·ter·dock \'spad·ə(r)ˌdäk, -atə-\ *n* 1 : the common yellow water lily (*Nuphar advena*) of eastern and central No. America that grows freely in sluggish fresh or sometimes slightly brackish water (as in swamps or about the margin of ponds) 2 : a plant of the genus *Nuphar* — see SOUTHERN SPATTERDOCK

¹**spattering** *adj* [fr. pres. part. of ¹*spatter*] : that spatters — **spat·ter·ing·ly** *adv*

²**spattering** *n* -S [fr. gerund of ¹*spatter*] 1 : SPATTER, SPRINKLING (a ~ of . . . freckles across the bridge of her nose —Irwin Shaw) (only a ~ of irregular lights burned in the palace tenements —D.C.Peattie) (a ~ of applause —J.M. Flagler) 2 : a method of painting stage scenery in which paint is spattered onto a surface

spatterware \'==ˌ=\ *n* : earthenware that has spatterwork designs

spatterwork \'==ˌ=\ *n* 1 : a process of reproducing designs by laying them on a surface and spattering the exposed parts with a tinting fluid 2 : a design made by spatterwork

spatting *pres part of* SPAT

spat·tle \'spad·ᵊl\ *n* -S [ME *spatyl*, fr. MF *spatule* — more at SPATULE] 1 : SPATULA 2 : an implement for mottling a molded article with a pigment

spat·u·la \'spachələ\ *n* [LL — more at EPAULET] 1 -S : a flat thin flexible dull-edged usu. metal implement used esp. for spreading or mixing soft substances (as paint, plaster, ointment, frosting), scooping, or lifting (as in removing cookies from a pan) 2 *cap* [NL, fr. LL] : a genus of ducks consisting of the shovelers and often included in *Anas* 3 -S : a spatulate process on the body of an insect

spatulas

spat·u·la·man·cy \-ˌman(t)sē\ *n* -ES [LL *spatula* spatula, [...]

Consommation et Corporations Canada
Bureau des brevets
Ottawa, Canada
K1A 0C9

Consumer and Corporate Affairs Canada
Patent Office

(21) (A1) 2,041,396
(22) 1991/04/29
(43) 1992/10/30

(51) INTL.CL.[5] G09F-021/04; B60R-013/00

(19)(CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Indicating Sign for Motor Vehicles

(72) Muggli, David - Switzerland ;

(73) Same as inventor

(57) 14 Claims

Canada

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Patent Application
for **Patent No. 5,711,100**

WILLIAM A. ELMER

Serial No. **10/098,648**

Filing Date: **March 15, 2002**

For: **VEHICLE ADVERTISING SIGN, SYSTEM AND METHOD**

Mr. Brian Green
Examiner
Art Unit 3611

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

AFFIDAVIT OF PAUL J. HALYARD, P.E.

State of Florida :
:
County of Orange :

Paul J. Halyard, having first having first appeared before the undersigned officer who is duly authorized to administer oaths in the State of Florida, did depose and say:

1. I received a bachelor's degree in mechanical engineering from the University of Florida in 1958 and have been a registered professional engineer in the State of Florida since 1963. My registration number is 7093. A copy of my curriculum vitae is appended as Attachment A.

2. I have 40 years of experience in a broad spectrum of the engineering sciences, including mechanical and electro-mechanical apparatus, systems and methods. I have been asked to evaluate whether the magnet assembly construction described in U.S. Patent 5,711, 100 (the '100 patent") would have been obvious to a skilled mechanical practitioner from the disclosure of the combination magnet-resilient cylinder arrangement in Canadian patent 2,041,396 ("the '396 patent"). Such an evaluation is well within my background and experience.

3. In connection with this evaluation, I reviewed the following materials:

a. the '100 patent;

b. the '396 patent; and

c. a November 2000 report entitled "HTH Magnet Car Sign Testing" performed by R. & L. Engineering of Albany, Georgia, appended hereto as Attachment B.

4. After reviewing and evaluating these materials, I have reached the definite opinion that the magnet assembly using a flexible sleeve and fastener arrangement as described in the '100 patent is not obvious from the disclosure of the magnet-resilient member construction in the '396 patent. The basis for my opinion is set forth in paragraphs 5-9 below.

5. First, the magnet-resilient member construction in the '396 patent presents a highway safety risk which is avoided with the flexible sleeve-fastener construction of the '100 patent. This is the case because the materials which are most likely to fail first in both of these constructions is the resilient cylinder **115** in the '396 patent and the flexible sleeve **130** in the '100 patent. Under the adverse weather,

wind, ultra-violet radiation and other adverse conditions that these constructions will be subjected to, there is no doubt that these non-metallic materials--rubber in the case of the '396 patent and a plastic sleeve in the case of the '100 patent--are much more likely to deteriorate than the metal or hard plastic parts. Upon failure of one of the resilient cylinders **115** in the design of the '396 patent, the sign will likely become unstable and fly off the vehicle causing a highway safety risk. In contrast, upon failure of the flexible sleeve **130** in the design of the '100 patent, the fastener **128** which extends through the magnet, the sleeve and into the base will hold the magnet in place and avoid any highway safety risk. This safety benefit achieved with the use of the flexible sleeve-fastener combination in the '100 patent is not at all obvious from the disclosure in the '396 patent.

6. Second: the flexible sleeve-fastener construction in the '100 patent avoids the glue or mold joints used in the design of the '396 patent between the resilient member **115** and the magnet **112** and/or the unnumbered washer used with bolt **117** to hold the resilient member **115** to the rail **114**. In use over time, these joints will be subjected to stresses which are likely to cause separation and thus failure. In the '100 patent, the extension of the fastener through the magnet, housing, flexible sleeve and into the base avoids the necessity for any such glue or mold joints. This benefit in the construction of the '100 patent is not at all made obvious from the disclosure in the '396 patent.

7. Third: I find nothing in the written text of the '396 patent which suggests that the resilient member **115** permits the lower face of the magnet **112** to be pivoted. While the durometer rating (i.e., degree of flexure capability) for this resilient cylinder

is not disclosed in the '396 patent, it is my professional opinion that a rubber cylinder with the described reduced cross-section having sufficient flexure to pivot would not function well under wind-loading conditions on a moving vehicle. On the other hand, if the rubber cylinder is provided with sufficient rigidity to avoid these difficulties under wind loading conditions, then it is unlikely that the cylinder will have sufficient flexibility to permit pivoting of the face of the magnet **112**.

8. Fourth: assuming that any pivoting of the magnet **112** does take place, it will be about a pivot point substantially above the magnet along the cylinder **115**. In contrast, the flexible sleeve-fastener construction of the '100 patent has a pivot point about the head of the fastener (described as a beveled head **132** at column 2, lines 59-60 in the '100 patent). This construction in the '100 patent thus permits the magnet to be mounted closer to the base of the sign, thereby reducing potential wind force hazards during use on a vehicle.

9. Fifth: in reviewing the test results of Attachment B, I have concluded that the good wind-loading capabilities of the HTH signs made according to the '100 patent are achieved in large measure because of the low profile of the magnet assemblies in that construction. This low profile is achieved by both (a) the flexible sleeve-fastener arrangement as described above, and (b) extending adjacent portions of the sides and ends of the sign around the magnet assemblies (i.e., so that the depending sides and ends extend below the base). This low profile configuration is not at all suggested in

the '396 patent, which discloses a very high profile arrangement which most likely will be subjected to high wind-loading characteristics.

FURTHER AFFIANT SAYETH NAUGHT.

Paul J. Halyard

Subscribed and sworn to before me
this 9th day of July, 2003.

Notary Public
My commission expires:

Herbert L. Allen
MY COMMISSION EXPIRES
April 11, 2005
#DD009036
Bonded thru
Troy Fain-Insurance
NOTARY PUBLIC, STATE OF FLORIDA

Personally known to me ✓
Produced identification of:

Curriculum Vitae

Name:	Paul James Halyard
Date of Birth:	September 2, 1935
Place of Birth:	St. Petersburg, FL
Marital Status	Married, 3 children
Education:	Graduated from St. Petersburg Senior High School in 1953
	Graduated from St. Petersburg Junior College in 1955
	Graduated from University of Florida, Gainesville, in 1958 – BME – upper fourth of class
	Graduated from Trane Company Training Program, La Crosse, in 1963
	Technical Assistance Analyst, No. T 0509, in 1979
	Graduated from Northwestern University Traffic Institute – Traffic Accident Reconstruction in 1982

Past Employment:

1958-60	Sperry Electronic Tube – Gainesville, FL
	Equipment Engineer (High Vacuum & Ceramic Metallation)
1960-63	Maddox Foundry & Machine Works – Archer, FL
	Chief Engineer
1963-68	The Trane Company – Orlando, FL
	Sales Representative (Heating, Ventilation, Air Conditioning and Heat Transfer)
1968-70	The Trane Company – Richmond, VA
	Manager, Dealer Sales
1970-72	The Trane Company – Pittsburgh, PA
	Manager, Engineering – Owner Accounts
1972-74	Sauer, Inc.
	Project Manager
1974-75	Sauer, Inc.
	Southeast Regional Marketing Manager
1975-77	Century Contractors
	President
	Private Engineering Consulting Practice –
1977-1998	Peninsula Engineering, Inc.
	Peninsula Forensic Engineering, Inc.
1999-present	Property Condition Assessment, Inc.

Professional Organization Affiliations:

Registered Engineer – State of Florida, No. 7093
Registered Engineer – State of Colorado, No. 20501
Registered Engineer – State of Alabama, No. 16996
Registered Engineer – State of Georgia, No. 017595
Member – American Society of Heating, Refrigerating and Air-conditioning Engineers
Member – Florida Engineering Society
Member – National Society of Professional Engineers
Member – Central Florida Chapter of American Society of Plumbing Engineers (Past President)
Member – National Academy of Building Inspection Engineers (Diplomate)
Charter Member and Fellow – National Academy of Forensic Engineers

Other Professional Activities:

April 1960	Presented "High Temperature Controlled Atmosphere Electric Furnace Design" paper at 44th Annual Florida Engineering Society Convention in Miami, FL.
1967-68	President – Central Florida Chapter of Florida Engineering Society.
1976-78	Charter President – Unity Church of Christianity.
1978	President and Chairman of Building Committee – Unity Church of Christianity.
1978	Attended "Mechanical Systems & Control of Fire Spread" Seminar
1979	Chairman – Ministerial Selection Committee
1980	Chairman – Board of Examiners of Mechanical Contractors and Journeymen, City of Orlando.
1980	Awarded – Excellence in Energy Conservation Design for New Construction from American Society of Heating, Refrigerating and Air Conditioning Engineers.
1982	Presented "Energy Professional Development Series Air System Design and Retrofit for Energy/Cost Effectiveness" speech in Atlanta, GA
1983	Speaker at the Accident Litigation Seminar held in Kauai, HA
January 1983	Director – Rotary Club of Orlando Southeast.
January 1983	Presented Speech entitled "Teach Air Conditioning Basics Through Psychometrics" to Orange and Volusia County School Board.
May, 1983	Charter Member – National Academy of Forensic Engineers.
May 1984	Conducted Accident Litigation Seminar in Lake Buena Vista, FL.
March 1985	Member – Orange County Building Advisory Board.
January 1987	Attainted National Academy of Forensic Engineers Seminar in Orlando, FL.
July 1987	Attended National Academy of Forensic Engineers Seminar in Denver, CO
1988	Nominated for Engineer of the Year by the American Society of Plumbing Engineers.
January 1988	Attended National Academy of Forensic Engineers Seminar in Mobile, AL
July 1988	Attended National Academy of Forensic Engineers Seminar in Seattle, WA
1989	Nominated for Engineer of the Year by American Society of Heating and Refrigerating Engineers Central Florida Chapter.
January 1989	Attended National Academy of Forensic Engineers Seminar in Atlanta, GA
July 1989	Attended National Academy of Forensic Engineers Seminar in Minneapolis, MN
1990	Nominated for Engineer of the Year by The American Society of Plumbing Engineers.

January 1990	Attended National Academy of Forensic Engineers Seminar in San Diego, CA
July 1990	Attended National Academy of Forensic Engineers Seminar in Norfolk, VA
1991	Membership with National Academy of Forensic Engineers upgraded to "Fellow."
1991	Paper on "The Use of Visual Aids: What is Demonstrative Evidence?" presented to and published in the 1992 Technical Journal of the National Academy of Building Inspection Engineers, Volume 1, Number 1.
January 1991	Attended National Academy of Forensic Engineers Seminar in New Orleans, LA
July 1991	Presented "Amusement Rides and Water Slides" speech/paper to National Academy of Forensic Engineers Annual Meeting in Grand Rapids, MI
January 1992	Attended National Academy of Forensic Engineers Seminar in Charleston, SC
July 1992	Attended National Academy of Forensic Engineers Seminar in Oakbrook, IL
January 27, 1993	Presented a talk on "Indoor Air Quality and Building Condition Surveys" to the National Academy of Building Inspection Engineers (NABE) at the NSPE Meeting in Kona, HA
May 11, 1993	Presented a talk entitled "Face and Bypass – Back to the Future" at ASHRAE Chapter Meeting. Discussion was centered on the use of face and bypass as a means to meet the new requirements for duct temperature suggested by ASHRAE 62.
March 25, 1993	Spoke on "How HVAC Systems Effect Indoor Air Quality (IAQ)" at Law Engineering Facilities and Engineering Consultants Seminar, Orlando, FL.
April 27, 1993	Appointed to the "Building and Fire Code Board of Adjustments and Appeals" by the Orange County, FL, Board of County Commissioners. Presently serving as Chairman.
May 19, 1993	Presented a talk, "Building Condition Surveys," to the Greater Orlando Association of Realtors.
July 21, 1993	Presented a talk entitled "Indoor Air Quality Evaluations – Commercial and Residential Buildings" at the National Academy of building Inspection Engineers 1993 Technical Workshop in Pittsburgh, PA
November 9, 1993	Served as a panelist on the subject of "The Transformation of the Construction Industry – Indoor Environmental Issues of the 90s" at a joint meeting of The Central Florida Chapter of ASHRAE, American Institute of Architects, and Associated Builders and Contractors.
November 15, 1993	Attended ASHRAE Professional Development Seminar in Orlando, FL.
January 1994	Attended National Academy of Forensic Engineers Seminar in Tucson, AZ
May 1994	Attended Second National Conference on Building Commissioning in St. Petersburg Beach, FL
May 1994	Elected President of Central Florida Chapter of the American Society of Plumbing Engineers.
July 1994	Attended National Academy of Forensic Engineers Seminar in Kansas City, MO

July 1994	Presented paper on "Indoor Environmental Quality" to National Academy of Building Inspection Engineers in Kansas City, MO
August 1994	Attended seminar on indoor air quality presented by American Society of Heating, Refrigerating and Air Conditioning Engineers in Ponte Vedra, FL.
October 1994	Attended, as a voting delegate, the 1994 ASPE Convention & Exposition in Kansas City, MO
January 1995	Attended seminar presented by the American Academy of Forensic Engineers in Houston, TX, and presented paper on "Indoor Environmental Quality."
May 1995	Paper on "Indoor Environmental Quality (IEQ)" published in Volume 2, Number 1, Spring 1995 issue of *The Journal of Building Inspection Engineering,* National Academy of Building Inspection Engineers.
April 12, 1997	Presented a talk entitled "How Can NABIE Meet the Challenges of Commercial Property Inspections?" at the Fifth Annual Meeting and Symposium of the National Academy of Building Inspection Engineers (NABIE) in Philadelphia, PA
February 28, 1998	Awarded **Engineer of the Year 1998** by the Florida Engineering Society after being nominated by American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
January 1999	Elected to the Grade of Fellow by ASHRAE in Seattle, WA
January 2001	Awarded Engineers Week 2001 **Career Achievement Award** by the Florida Engineering Society

Testimony: Served as Expert Witness in the following cases:

Mawby vs. American Cast Iron Pipe Co.
Orange County, FL
Re: Air Conditioning Construction, Non-rising Valve Stem Construction
Judge George N. Diamantis

Verne vs. Blount Bros. Will Hoyt Steel
Titusville, FL
Re: 90-ton Crane to lift Orbiter Missile in place
Case No. 78-672-CA-01
Judge Virgil V. Conkling

Scheckler vs. City of Mt. Dora
Lake County, FL
Re: Personal injury involving Dempsey Dumpster
Judge C. Welborn Daniel

Keckley vs. Imperial Bank et al
Circuit Court of Bartow, FL
Re: Slip and Fall
Judge J. Tim Strickland

Sorenson/Fletcher Construction Co. vs. Warren E. Williams et al
Orange County, FL
Re: HVAC Construction Failure Analysis
Case No. 81-1897
Judge William C. Gridley

Edmiston et us vs. William R. Thomas et al
Circuit Court of Sanford, FL
Re: Accident Reconstruction, Articulated Vehicle/Pedestrian
Case No. 82-0023 CA
Judge S. Joseph Davis, Jr.

Catalyst, Inc., vs. Timothy S. Brumlik
Circuit Court of Orange County, FL
Re: Construction Litigation involving Error & Omissions; Preparation of Plans & Specifications
Case No. C182-1616
Judge W. Rogers Turner

Arnold vs. Greer Electric/Steven Reardon
Circuit Court of Brevard County, FL
Re: Accident Reconstruction – Seat Belts
Case No. 84-4837-CA-J
Judge Clarence T. Johnson, Jr.

Lambert vs. GEICO Insurance
Circuit Court 18th Judicial Circuit, Seminole County, FL
Re: Accident Reconstuction – Seat Belts
Case No. 86-1129-CA-10-A
Judge Kenneth M. Leffler

Campion vs. James E. Strates Shows, Inc.
Ninth Judicial Circuit Court of Florida
Re: Mechanical Platform Design Resulting in Death
Case No. C188-6081
Judge Frederick Pfeiffer

Stanley G. McNatt vs. City of Orlando
Orange County Circuit Court
Re: Accident Reconstruction – Point of Collision
Case No. C186-3964
Judge Frederick Pfeiffer

Sun Bank, NA, vs. 205 East Central, Ltd.
Orange County Circuit Court
Re: Building Construction Survey – Code Compliance
Case No. C189-2849
Judge William C. Gridley

KMS of Florida Corporation vs. Magna Properties, Inc.
Brevard County, FL
Re: Polybutylene Plumbing System – High Rise Condo Plumbing Failure
Case No. 82-5004-CA-S
Judge Virgil V. Conkling

Al Bosgraaf & Sons, Inc., vs. United States Navy
Armed Services Board of Contract Appeals, Falls Church, VA
Re: Termination of contract – Grease Duct Construction – NFPA97
Case No. ASBCA 43372
Judge Ronald Lipman

Kennedy vs. Rodeway Inn Eastgate
Osceola County Circuit Court, FL
Re: Issue of stair tread/riser construction
Case No. C192-273
Judge Frank Kaney

McCrory Corporation, et al, Debtors
Chapter 11, Case No. 92-B-41133 (CB) through 92-B-41160 (CB)
Mack Realty Company vs. C.G. Gulf Property Assoc., et al
Adv. Pro. No. 93-9918A
United States Bankruptcy Court, Southern District of New York
Re: Heating, ventilation, and air conditioning (HVAC) deferred maintenance as related to indoor air quality (IAQ)
Judge Cornelius Blackshear

Sandy Lake Properties, Inc., Debtor
Chapter 11, Case No. 01-07829-6J1
Arbor Commercial Mortgage, LLC, Creditor
United States Bankruptcy Court, Middle District of Florida
Judge Karen S. Jennemann, US Bankruptcy Court Judge

Arbitrations:

Save Inn – Smith Barney
192 & Turnpike in Kissimmee, FL
Re: Mildew

Palm Springs Office Square – T1-11
Palm Springs Drive
Altamonte Springs, FL
Re: Siding

Amica Mutual Insurance Company
Totura & Company
Case No. F37V02477
Re: Polybutylene Plumbing System

Walter B. Rise, Claimant vs. School Board of Manatee County
Case #AAA No. 32 110 00352 95 DE
Re: Indoor Air Quality/ASHRAE 62-1989

Mediation:

Charles and Marie Bradshaw vs. Creative Change of Central Florida
Case #AAA No. 33 110 00116 96
Re: Building Construction Workmanship and Standard of Care
Note: Parties agreed to Mediation prior to Arbitration

HTH
Magnetic Car Sign Testing

Performed by

R&L Engineering
1005 Willie Pitts Jr. Road
Albany Georgia

(229) 883-6052

November 2000

Testing was performed on the HTH magnetic car sign to determine conditions, which would lead to the sign becoming separated from the vehicle it is attached to.

The test was performed in three stages.

Stage one:

The signs were placed on an electrical enclosure (to simulate being attached to a vehicle).
A strap was placed around the sign and connected to a pneumatic cylinder.
The Pressure in the cylinder was increased until the sign moved on the cabinet and the pressure was recorded. The force can be calculated at which the sign moves by multiplying the pressure and the piston area. The force was noted. See Figure 1.

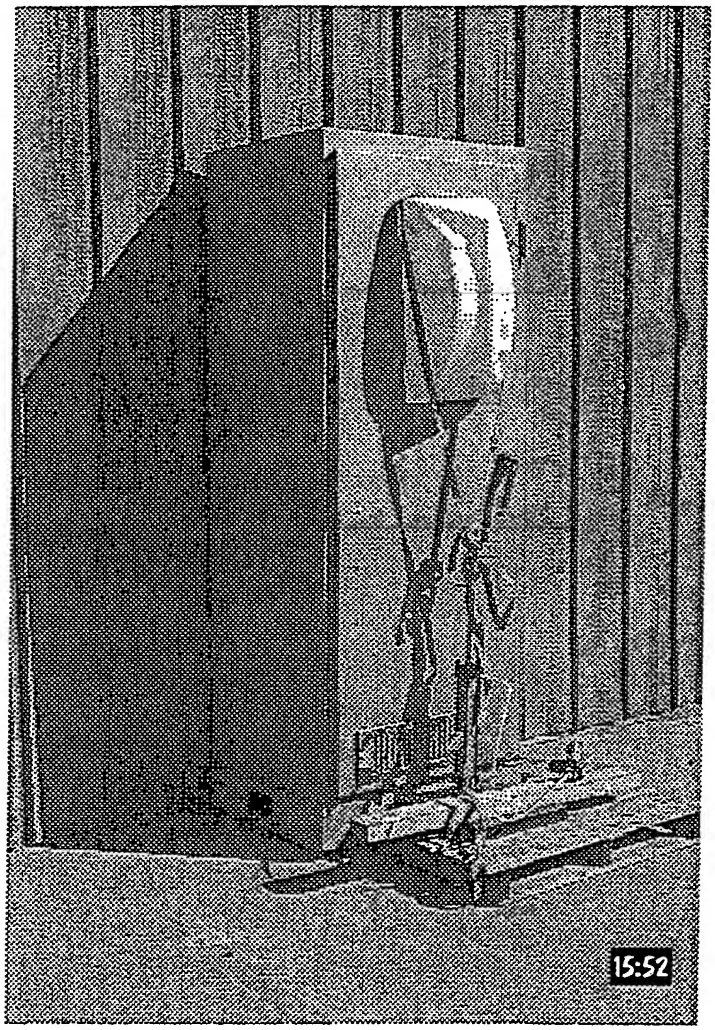


Figure 1
Static Testing

Results of Stage One
Static Test of Sign

Domino's Sign

Pressure to move the Sign	28 lb/in^2
Force to move sign	79 lbs

Quad Sign

Pressure to move the Sign	38 lb/in^2
Force to move sign	107 lbs

Cylinder Spec.	
Hydroline	Q5C 2X12
Model	N-.63-2-N-N-1-1
Serial Number	398 070496-01

Area (rod side) 2.835 in^2

Stage two:

A mechanism was built that would fit into the back of a truck and support the magnetic sign over the cab of the truck. Using the mechanism, the wind resistance could be measured on the sign while driving the truck at various speeds. Also the pressure verses speed numbers were recorded in both directions on the road to negate any wind speed variations. Two separate signs were tested and the results were recorded.
See figure 2, figure 3 and figure 4.

Figure 2
Dynamic Testing

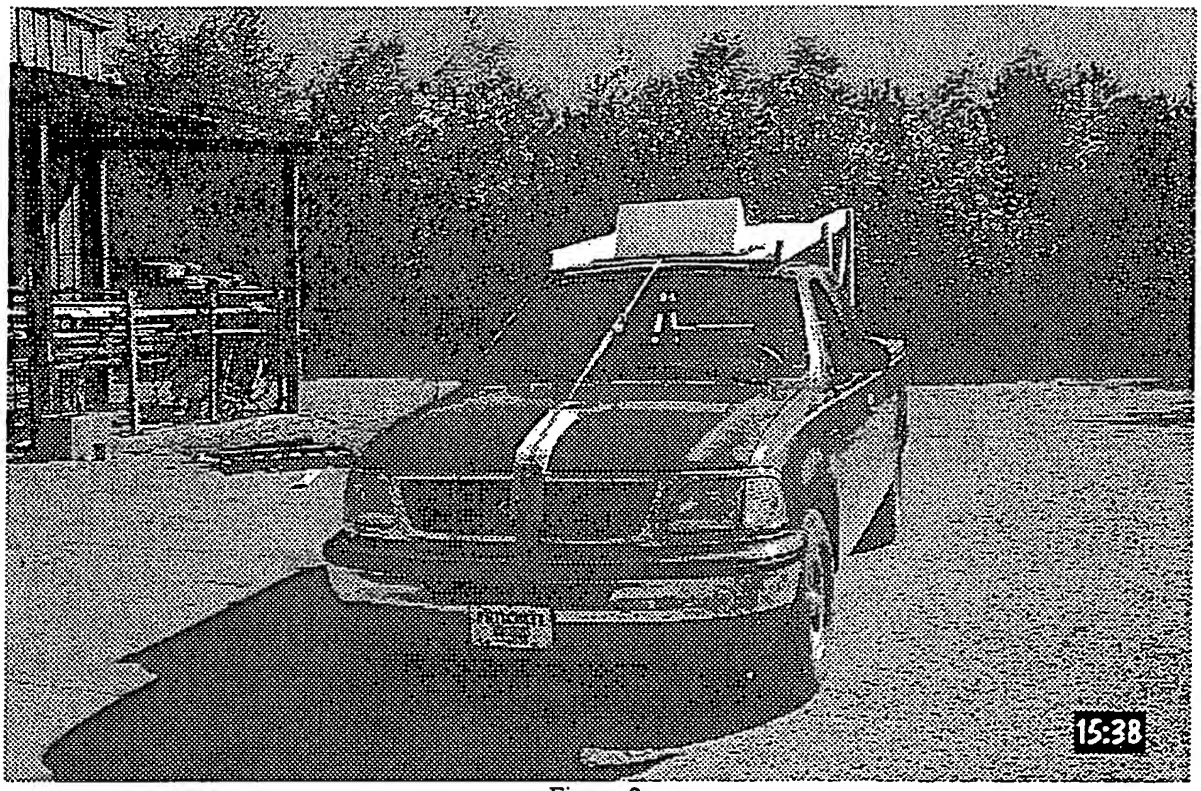


Figure 3
Dynamic Testing

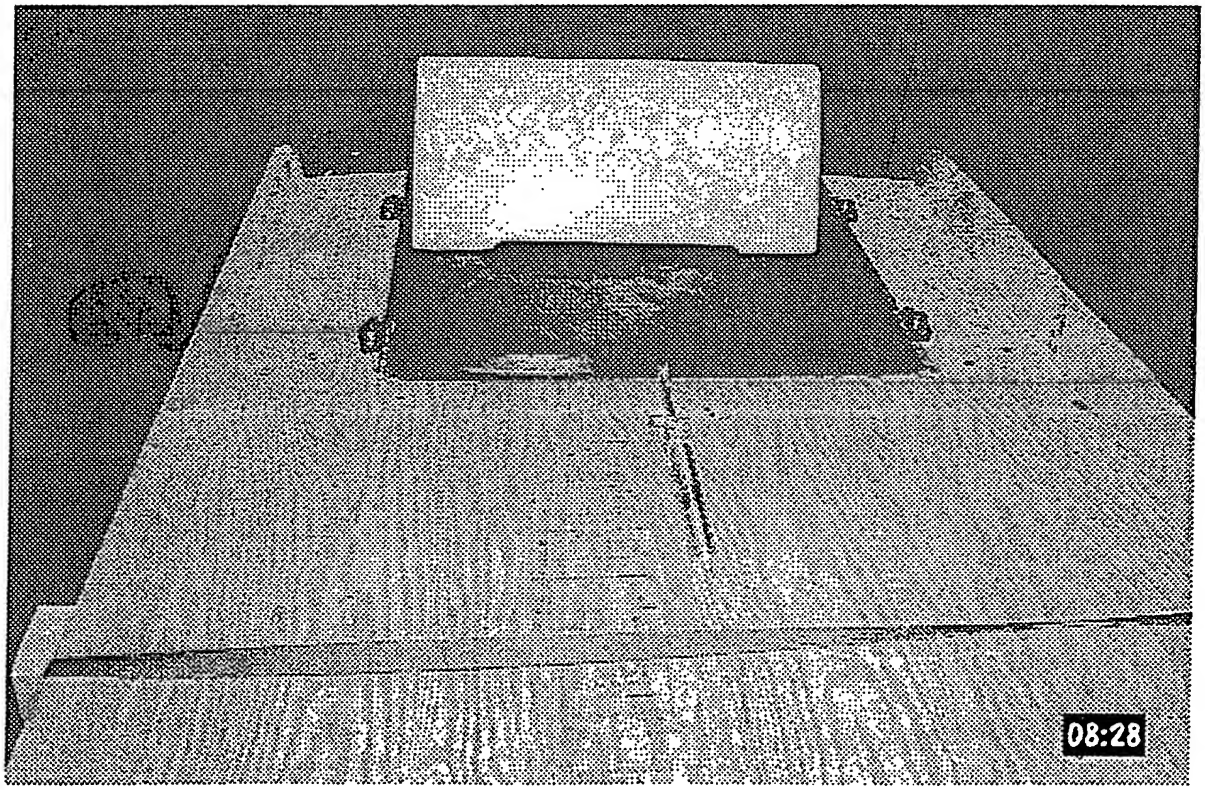


Figure 4
Cylinder mechanism for force measurement

Truck Road Test Results

Domino's Sign

Speed (MPH)	Pressure on Cylinder	Calculated force
60	less than 5 psi	
65	5	4.4
70	8	7.1
75	10	8.9
80	12	10.6
85	14	12.4

Quad Sign

Speed (MPH)	Pressure on Cylinder	Calculated force
50	10	8.9
60	15	13.3
70	20	17.7
75	25	22.2
80	27.5	24.3

Stage three:

Magnets were removed from one of the signs and placed on the tailgate of a pickup truck (the tailgate was lowered so it was horizontal).
Weights were hung from the magnet until it fell from the tailgate.
The amount of weight required to pull the magnet from the tailgate was sixteen pounds.

This test falls in line with the results of the test, which Adams Magnetic Products performed. Basically their testing showed a decrease in magnetic pull by one half when the magnet was coated. Their test also showed a magnetic pull of 30 pounds when the non-coated magnet was clamped to a .035-inch thick steel plate. Now if this force is multiplied by one-half, the results would be 15 pounds.

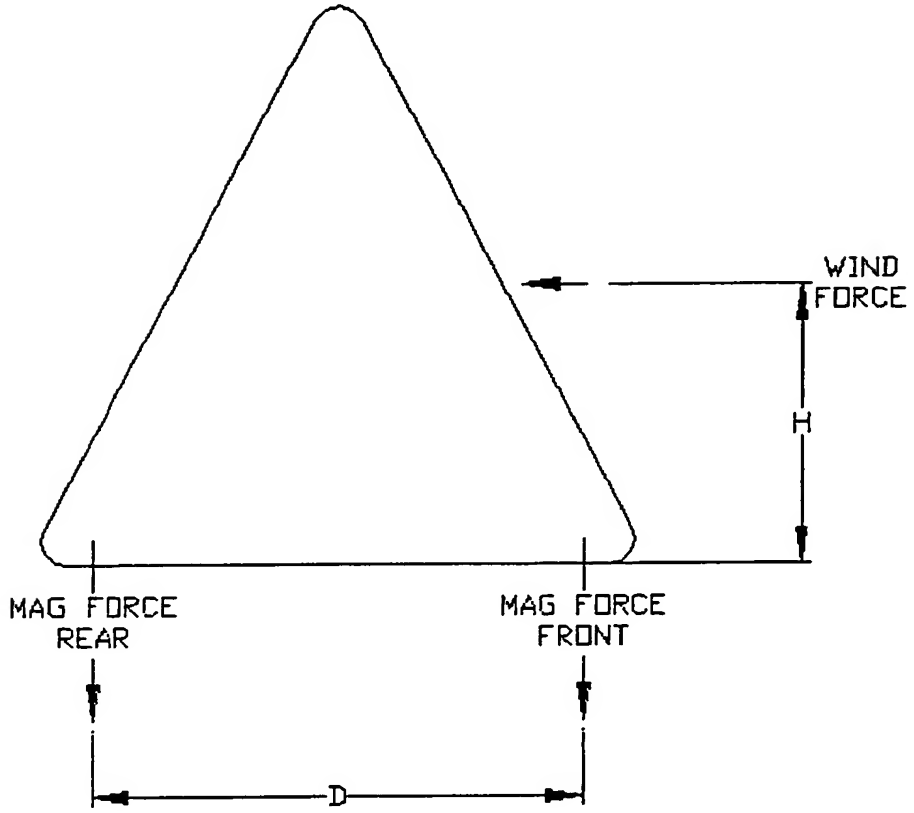
Assumptions made for the following calculations:

The force to pull the magnet away from the top of a vehicle will be greater than 16 pounds. Based on the measurements taken using the tailgate.

The moment created by the wind resistance is resisted by one magnet on the front of the sign. In a case where the sign is clamped onto a curved surface, it is possible that only three of the screw heads holding the sign to the magnets are in contact. In most cases the fact that I only used one magnet for the resistance force will actually result in a factor of safety of two.

Using this figure, calculations were made to predict the speed at which the sign would possibly twist off of the vehicle.

Results of Stage Three
Domino's Sign



Summing the moments about the rear magnet:

Mag Force front * D = Wind Force * H

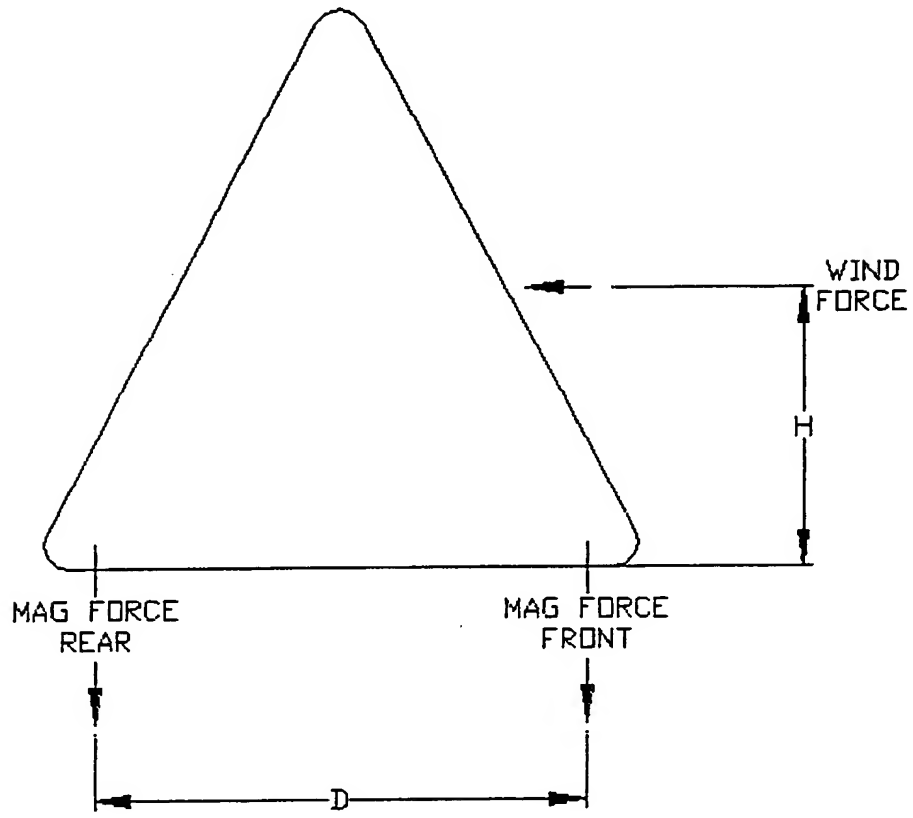
D = 9.5" on the Domino's sign
H = 5.5" if it is assumed that the wind resist force acts at one half the height of the sign.

Magnetic Force Front = 16 pounds

16 pounds * 9.5" = Wind Force * 5.5"

or if the wind force exceeds{ (16 pounds * 9.5")/5.5" } 27.6 pounds then the front magnet will not hold and the sign will twist off of the car.

Results of Stage Three
Quad Sign



Summing the moments about the rear magnet:

Mag Force front * D = Wind Force * H

D = 7.37" on the Quad sign
H = 4.88" if it is assumed that the wind resist force acts at one half the height of the sign.

Magnetic Force Front = 16 pounds

16 pounds * 7.37" = Wind Force * 4.88"

or if the wind force exceeds{ (16 pounds * 7.37")/ 4.88" } 24.2 pounds then the front magnet will not hold and the sign could possibly twist off of the car.

Conclusion:

The wind resistance needed to twist the Domino's sign about the rear magnets and pull the front magnets from the top of the vehicle would be in excess of 27 pounds.

Under steady state conditions of traveling down a road, a wind resistance in excess of 12 pounds was not measured on the Domino's sign and the sign was tested at speeds in excess of eighty miles per hour.

The wind resistance needed to twist the Quad sign about the rear magnets and pull the front magnets from the top of the vehicle would be in excess of 24 pounds.

Under steady state conditions of traveling down a road, a wind resistance in excess of 24 pounds was not measured on the Quad sign until the vehicle was traveling in excess of seventy-five (75) miles per hour.

APPENDIX C - RELATED PROCEEDINGS APPENDIX
PURSUANT TO 37 C.F.R. §41.37(c)(1)(x)

None.